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Industrial Development and the Environment in Mexico

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Postwar industrialization has moved Mexico's manufacturing industry toward more polluting activities, partly through heavy public investment in heavily polluting subsectors and partly through below-market pricing policies for petroleum fuels.

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Postwar industrialization has moved Mexico's manufacturing industry toward more polluting activities. Fairly independent of changes in foreign trade policy, this process was induced by expansive public investments in heavily polluting subsectors, especially petro- and agrochemicals.

Below-market pricing policies (implicit subsidies) for petroleum fuels contributed to an increase in industrial energy intensity — in sharp contrast with the pervasive energy-saving transition in OECD countries in the last two decades. Energy intensity in Mexican industry increased 5.7 percent between 1970 and 1990, compared with a decrease of 35.3 percent in OECD industry.

INDUSTRIAL DEVELOPMENT AND THE ENVIRONMENT IN MEXICO

by

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1. INTRODUCTION

1.1 Development Strategies

Shortly after the Second World War, Mexico adopted a model of import substitution which was followed by a long period of high economic growth and impressive industrial development. When, in the middle of the seventies import substitution had reached its limits, it was replaced by a growth model based upon the development of the petroleum sector. [1] In the early eighties, external circumstances (declining oil prices, increasing interest rates) obliged economic policy makers to abandon this model again and the economy was plunged into its most severe crisis of the post-war period.

Since then, Mexican economic policies have undergone thorough changes. In the macroeconomic sphere, the fiscal balance was brought back under control, credit policies were reshaped in such a way as to reduce the dependency on foreign borrowing and exchange rate management became more flexible than it had been before.

At the same time, the inward-looking strategy was changed into an outward-looking one. The very restrictive import regime was

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[1] For a description of the different growth models adopted by Mexico since the Second World War see De Mateo (1988).

progressively dismantled, many state-owned companies returned to private ownership, direct foreign investment was liberalized up to a certain extent and deregulation hit important sectors of the economy (e.g transportation). Generally speaking, competition was given a much more important role in the development process than it had ever had since the Second World War. [2]

1.2 Environmental Problems

In practically all countries of the world economic growth in general, and industrial development in particular, have had important consequences for the physical environment its people are living in. Mexico is no exception. Nowadays, almost all major urban concentrations are suffering from heavy air pollution and Mexico City is sometimes mentioned as the most polluted city of the world. Most rivers and lakes are severely contaminated, and so is groundwater in many places. Consequently, marginal costs of water supply have increased significantly. Waste collection and disposal facilities are increasingly insufficient. Soil erosion lowers the productivity of land for agricultural uses and deforestation threatens the survival of scarce animal species and plants. All these phenomena are of major concern and are putting a heavy strain

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[2] This episode of structural adjustment and trade liberalization was described in detail by Ten Kate (1992 a and b).

on future economic growth.

Evidently, these problems are caused by a variety of factors among which industrial development is an outstanding but not the only one. Other factors that should be mentioned are: (i) the growth of the population and its consumption patterns, (ii) regional concentration of economic activity, (iii) modes of transportation of both persons and cargo, (iv) modes of electricity generation, (v) the development of the mining sector and last but not least (vi) agricultural activity, particularly through land reclamation, irrigation and fertilizer use.

1.3 Scope

With the foregoing in mind, the present paper attempts to assess to what extent Mexico's industrial development and the economic policies affecting its industrial sector can be held responsible for the enormous deterioration of the environment that has occurred since the Second World War. Specific questions to be addressed are:

(i) what has been the influence of the import substitution policies of the fifties, sixties and first half of the seventies upon the state of the environment?

(ii) how far has the environment been affected by the below-market-pricing policies for energy goods of the late seventies and early eighties?

and (iii) what has been the role in polluting the environment of public sector participation in the productive sphere?

The fact that these questions are addressed in the paper does not imply that they are answered in a satisfactory way. Considering the enormous lack of data, particularly historic information on the state of the environment, it is hardly surprising that the answers cannot be but partial and that most of them can only indicate directions or suggest trends rather than being conclusive in a quantitative sense.

Moreover, many questions are not touched upon. For example, macroeconomic policies are not considered in this scheme. The reason is that the influence of macroeconomic policies upon environmental variables is far from direct and conditioned on all sorts of unknown responses, which would make an assessment of its effects too speculative. Perhaps the only thing that might be stated in this context is that austerity in government spending may come into conflict with the needs for environmental monitoring and the establishment of enforcement mechanisms. But even in this field, expenditures on environmental control remain a matter of setting priorities within the government budget. Also, if austerity is commanded by the need to reduce a fiscal deficit, this could be eased by environmental policies, if pollution taxes, fees and fines were imposed.

This does not imply that the environmental impact of the policies to be addressed expressly is so straightforward. On the contrary, most policies are not designed so as to deliberately influence environmental variables. Therefore, their effects are usually indirect and, possibly, unintentional.

1.4 Organization

The organization of the paper is as follows. After this introduction, the second section presents estimates of the pollution intensity of the Mexican manufacturing industry and of its evolution over the last four decades, using fixed US emission coefficients by industrial subsector by lack of more adequate information.

The third section reviews the main characteristics of Mexico's foreign-trade policies and industrial development since the Second World War and makes some inferences about the likely consequences of this development for the state of the environment. These intuitive inferences are compared with the findings of the preceding section and an attempt is made to understand the discrepancies.

In the fourth section, relative prices of environmentally sensitive goods are examined with particular attention to energy goods, and the question is asked to what extent low pricing policies for those

goods may have contributed to a further deterioration of the state of the environment.

The last section summarizes the content of the paper and brings together its main conclusions.

2. INDUSTRIAL POLLUTION ESTIMATES

2.1 Methodology

In the present section the results of the calculation of some pollution indicators for the Mexican manufacturing sector are presented for the 1950-1989 period. As no emission figures are available for Mexico's manufacturing industries, the estimates are based on fixed US emission coefficients collected from USEPA emissions databases converted by Wheeler [3] into the following 7 compound industrial pollution indicators:

1. total quantity of TRI (Toxic Release Inventory) chemicals released or transferred (AVTRIT)
2. linear acute human health and terrestrial ecotoxicity (AVHUML)
3. exponential acute human health and terrestrial ecotoxicity (AVHUMX)
4. linear acute aquatic toxicity (AVQAC)
5. exponential acute aquatic toxicity (AVQAX)
6. cancer risk (AVCANC)

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[3] The inventory contains measures of releases of various substances. The 7 alternative indicators mentioned here are weighted sums of substances released. Indicator number two uses risk weights 1 through 4 where 4 denotes the substances deemed to pose the highest risk to human health. For an explanation of the indicators and an exposition of the assumptions on which they are based see Wheeler (1991b). The values of the indicators by ISIC class are listed in Annex 3.

7. total quantity of metal compounds released or transferred (AVMETAL)

In view of the fact that the different pollutions indicators produce fairly similar results and in order to avoid excessive repetition, we confine ourselves to the presentation of the results for the second indicator, i.e. the linear acute human health and terrestrial ecotoxicity (AVHUML).

For lack of better information, it had to be assumed that the US emissions figures by industrial ISIC class (which measure discharges per dollar value of output), and the derived pollution indicators, were equally applicable to Mexican manufacturing activities. Moreover, it was assumed that the emissions per unit of output in each industry were constant over time. Consequently, changes in our estimates of the pollution intensity of the manufacturing industry are exclusively produced by structural changes in the composition of the activity basket. In other words, the effects of intra-activity changes and of technological changes in the emissions per unit of output, e.g. by cleaner production technologies, are not taken into account.

It is quite possible that the above mentioned assumptions have introduced an important bias in our estimates. In the first place, US emission figures were collected at a moment that pollution control measures had already been in place for some time in the US

while in Mexico the environmental aspects of industrial pollution were largely ignored during the period under study. In the second, whereas US industry faced increasing energy cost after the 1973 and 1979/1980 international price shocks, Mexican energy pricing policies did not follow the increases and kept the cost of energy far below world market opportunity cost until very recently. As a result US and international industry have developed less energy-intensive technologies, [4] that were not adopted, or adopted to a lesser extent, by Mexican industries. Under these circumstances, the assumption of fixed pollution coefficients may well be too optimistic for the Mexican case. Therefore, our figures probably underestimate the real dimension of the pollution problem.

The weakness of the assumption of fixed emission coefficients by industry is further aggravated by recent findings that the scope for inter-fuel substitution within industries is quite ample [5] and that within-industry effects of such a fuel substitution usually outweigh the effect of inter-industry shifts.[6]

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[4] For example, Bacon (1992) argues that total fuel use by manufacturing industries in OECD countries did not increase from 1971 to 1988 in spite of a growth in output of 62%. See also section 4 below.

[5] See Eskeland et al. (1991).

[6] See Moss and Tybout (1992) and section 4 below.

2.2 Sources of Information

The evolution of the levels and structure of manufacturing industrial activity was taken from the National Accounts series elaborated by the Bank of Mexico for the 1950-1971 period and from two series elaborated by the INEGI, one for the period 1970-1984, the other for 1980-1989. The National Accounts of the Bank of Mexico distinguishes 30 manufacturing sectors, those of the INEGI 131 industrial groups at the subsectoral level.

From the above mentioned information two series of real manufacturing output were constructed: the first with 30 manufacturing sectors ranging from 1950 to 1971, the second with 131 activities, ranging from 1970 to 1989. The second series was obtained by coupling the two INEGI series whose sectoral classifications coincide almost completely. The resulting series are listed in Annexes 1 and 2.

The next step was to establish the correspondence between the manufacturing activities of the two series and the 74 industrial ISIC categories reported by Wheeler. For the first series this was not always possible and this must have given rise to a lower precision in the estimates. For the second series the correspondence could be established in an almost straightforward manner. The correspondence between the National Accounts

activities and the ISIC classes for the 1950-71 and 1970-89 series is given in Annexes 4 and 5 respectively.

2.3 Results

Table 1 and the corresponding figure present the evolution of the pollution intensity according to the compound pollution indicator AVHUML mentioned before. There is an important mismatch in the overlapping years of the two series. This mismatch is mainly due to the lack of detail in the activity classification of the first series and, to a lesser extent, to differences in weighting factors provoked by the transition from 1960 to 1970 prices. It should be remembered that the table represents the intensity of pollution generated per unit of manufacturing output; i.e. the effect of the growth of the manufacturing output, which amounted to 333% from 1950 to 1970 and to 126% from 1970 to 1989, is not accounted for in the table. If we were to take account of both phenomena, we would find manufacturing industries producing 20 times as much pollution in 1989 as in 1950, where a doubling of pollution intensity combines with a ten fold expansion of output.

The general picture is that the pollution intensity is increasing over time; by approximately 50% over the 1950-1970 period and by 25% over the 1970-1989 period. The figures demonstrate convincingly how the Mexican manufacturing industry has moved towards more polluting subsectors over the last forty years.

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A closer look at the time profile of the growth of pollution intensity makes clear that this indicator increased steadily over time with shortlived interruptions from 1955 to 1958 and from 1963 to 1967 and with a somewhat longer interruption from 1973 to 1980.

In table 2 the sectoral contributions to the pollution intensity are presented as a percentage of total discharges for the period 1970-1989. The twenty most polluting sectors out of a total of 130 activities are listed according to their share in the overall pollution discharges in 2989. Sixteen of them correspond to production of intermediates. These sectors increased their participation in the pollution intensity from two thirds in 1970 to almost four fifths in 1989.

Perhaps the most important conclusion form the figures of table 2 is that the increase in pollution intensity during the seventies and eighties is almost exclusively attributable to the increase in the relative contribution of only two sectors: petrochemicals and fertilizers. This is of particular importance as both sectors were dominated by public sector companies, PEMEX and FERTIMEX, either due to constitutional restrictions (petro-chemicals) or to government pricing policies making private sector investments highly unprofitable (fertilizers). In other words, the notorious increase in the pollution intensity of Mexican manufacturing industry since 1970 can fully be written on the account of public sector participation in a few heavily polluting activities.

Although the growth of the relative importance of some private sector based activities such as synthetic fibers, synthetic resins, and basic chemicals also led to an increase in the pollution intensity, this was compensated by relative reductions of other manufacturing industries output which are also in the more polluting categories.

Similar observations, although to a lesser extent, can be made about the 1950-1970 period. In fact, somewhat more than half of the approximately 50% increase of the pollution intensity from 1950 to 1970 is explained by the increase in the relative participation of petro- and agrochemicals, the remainder being due to a few sectors mainly under private ownership such as basic chemicals and synthetic fibers and resins.

3. FOREING-TRADE POLICIES AND INDUSTRIAL DEVELOPMENT: CONSEQUENCES FOR THE ENVIRONMENT

3.1 Import Substitution Period (1945-1976)

During the three decades following the Second World War Mexican industrial development passed through different stages of import substitution, and its foreign-trade policies became increasingly inward-oriented. As early as 1947 an import licensing system was installed whose importance grew steadily over time until it covered 91% of import value in 1976 (See table 3). By far the most important criteria un determining whether or not an import permit was granted was the availability of the good under consideration from local production. Additionally, imports have been subject to import tariffs, mostly on an ad-valorem basis, with rates ranging from 0 to 100% as a rule. Generally speaking, rates were higher for goods produced in the country than for those not available form local sources.[7]

The import substitution process can be roughly divided in three stages. During the first stage, which lasted until the end of the fifties most imports of non-durable consumer goods were

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[7] For extensive descriptions of Mexico's foreign-trade policies during the considered period see King (1970), Bueno (1971), Ten Kate et al. (1980) and Balassa (1983).

substituted. The second stage covers the decade of the sixties and refers to the substitution of consumer durables and unsophisticated intermediates. Substitution of technologically more advanced intermediates and of capital goods was undertaken in the seventies but was frustrated by a change of policies in the middle of that decade.[8]

Given the fact that, generally speaking, the production of intermediates, particularly that of the unsophisticated ones, is by far the most polluting activity - much more polluting than production of final consumer and capital goods - it is expected that the heaviest impact of the Mexican industrialization process upon the environment was produced during the second stage of the import substitution process.

It should be recognized, however, that the growth of manufacturing output is not only defined by the degree of import substitution but also, and often to a larger extent, by the dynamics of domestic demand. That is to say, the fastest growing sectors need not necessarily coincide with the sectors for which import substitution is highest. Moreover, demand growth may be negatively affected by the higher prices needed to keep the import substitution process going. Apart from that, it should be emphasized that the three stages of import substitution largely overlap. For example, import substitution of intermediates did not wait for that of the durable

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[8] See De Mateo (1988).

consumer goods to be finished , but started already during the Second World War and continued until far beyond the import substitution period.

With that in mind, it is not surprising that the different phases of import substitution are not so clearly reflected in the growth pattern of manufacturing output. In table 4 compound annual growth rates od different components of the manufacturing and other sectors are brought together for a number of periods.

To give an example of the lack of correspondence, the growth of the relatively modest Mexican capital goods sector has always been significantly higher than that of the manufacturing sector as a whole, i.e. not only during the last stage of import substitution, as is to be expected, but also, and even more sharply , during the first two stages. Similar observations, but to a lesser extent, hold for the intermediate goods sector which increased its participation in manufacturing output continuously over the whole import substitution period, from 39% in 1950 to 45% in 1989.

As demonstrated in the foregoing section, the pollution intensity estimates of the manufacturing sector as a whole show a steady increase from 1950 to 1976 irrespective of the different import substitution stages, mainly as a consequence of the growing relative importance of intermediate goods.

The legacy of the import substitution phase was a largely traditional and uncompetitive industrial apparatus with an important foreign participation in the technologically more advanced sectors and still a high dependency on imports for sophisticated intermediates and capital goods. At the mid seventies import substitution possibilities were virtually exhausted and an important change of policy took place after the peso devaluation of 1976 at the beginning of the Lopez-Portillo administration.

3.2 Petroleum-Led Growth (1977-1982)

With the discovery for huge oil endowments in 1974 and 1975 and given the enormous increases in international oil prices since 1973, the López-Portillo administration (1977-1982) decided to abandon the growth model based upon import substitution and concentrate its efforts upon the development of oil resources. In response to a relative abundance of foreign exchange, foreign-trade policies were slightly liberalized during the late seventies and at the close of the decade the government even tried to achieve Mexico's accession to the GATT. The attempt failed, however, due to heavy opposition from domestic trade unions and small-scale entrepreneurs.

The modest trade liberalization did not bring domestic prices closer to international prices, however. On the contrary, the incentive structure became more distorted than it had been before

as a result of a monstruous system of government subsidies [9], made possible by the export earnings from crude oil and capital inflows. In fact, during that period, the Mexican economy drifted further away from market forces and became increasingly manipulated by the government.

In the early eighties the opening up of the import regime came to a stand-still and with increasing balance of payments problems, derived from a weakening international oil market and sky-high interest rates in the major financial markets, the Mexican economic policy package came under heavy pressure and virtually collapsed with the debt service moratorium in 1982 and the subsequent crisis of the international financial system.

There are a number of reasons to assume that the environmental situation should have deteriorated quickly during the shortlived petroleum-led growth period. First of all, there was an important acceleration of the growth of the manufacturing industry as a whole. In fact real manufacturing output registered a compound annual growth rate of 9.3% during the period 1976-1981, as compared with 6.4% for the 1970-1976 period. In the second place, the petroleum sector itself whose participation in GDP increased sharply is a comparatively heavy polluter. Last but not least, pricing policies for oil products stimulated a number of heavily

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[9] For an assessment of Mexican subsidies and their economic consequences see Gil Diaz (1987).

polluting activities in the chemical industries, a relatively fuel-intensive transport sector and more energy-intensive technologies.

Strangely enough, as demonstrated in the foregoing section, our estimates of pollution intensity do not fully support this hypothesis. Contrary to expectations, we find that the pollution intensity has been relatively stable form 1973 to 1981, in contrast with sharp increases during other periods.

It should be realized, however, that the relative stability of the pollution intensity does not mean that the environmental situation did not deteriorate. On the contrary, on one hand, the acceleration of growth itself of manufacturing output during this period with a more or less stable pollution intensity level must have resulted in an increase in the absolute level of pollution at the same rate of growth as that of manufacturing output. On the other hand, it should be kept in mind that out pollution intensity estimates are based on fixed emission coefficients so that the effects of intra-sectoral shifts towards more energy-intensive technologies are not accounted for in those figures. Thus, the only conclusion that may be drawn from the findings of the foregoing section is that structural changes towards more pollution intensive subsectors did not take place during the period.

Still, there are some other reasons for the comparative stability of our pollution intensity estimates during the petroleum-led

growth period. In the first place, the expansion of the petroleum sector during the period under consideration took place mainly in the exploitation of crude oil and natural gas which does not belong to the manufacturing sector as such. Thus, it is not accounted for in the figures presented in the foregoing section. As may be seen in table 4, the growth of the manufacturing part of the petroleum industry, i.e. the refining activity and the petrochemical industry, was only slightly higher that of manufacturing on the average. (9.8 against 9.3% per annum.)

The second reason is that the substantial public investments in a number of downstream hydrocarbon related activities such as petrochemicals and fertilizers, although realized during the petroleum-led growth period, came into operation only in the early eighties, most of them after the crisis of 1982 (see table 4).

Likewise, it was only until the end of the petroleum-led growth period that energy goods became cheap in comparison with international prices (see section 4 below). Again in this case, due to gestation lags, the supply response to low energy prices was far from direct in sectors such as the chemical industries, so that it is not surprising that these sectors continued with growth rates significantly above the average in subsequent years (see table 4).

3.3 Macroeconomic Stabilization and Trade Liberalization 1983-1988

After the foreign-exchange crisis of 1982 and the subsequent devaluations and upsurge of inflation, the 1983-1985 period was characterized by macroeconomic stabilization efforts. However, in spite of the closure of a number of unprofitable state enterprises draining the government budget, the efforts turned out insufficient to bring inflation down to acceptable levels and to bring the economy back to a sustained growth path.

In July 1985 recourse was sought in an ambitious trade liberalization program to combat inflation and render the Mexican economy more competitive by exposing domestic producers and distributors to foreign competition. One year later, i.e. in the summer of 1986, Mexico acceded to the GATT. Due to the enormous depreciation of the real exchange rate during the 1985-1987 period, the effects of the import liberalization were only felt until 1988 when, with the measures of the Economic Solidarity Pact, the real exchange rate appreciated back to more sustainable levels. [10]

For the same reasons as those mentioned for the petroleum-led growth period, but now working in the opposite direction, industrial development during the period considered here should have been fairly neutral, or perhaps even favorable, to the state of the environment. In the first place, economic growth stagnated

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[10] See Ten Kate (1992 a,b).

and was not significantly different from zero until 1988. Real manufacturing output grew at a compound annual rate of 0.2% from 1981 to 1988. Second, the relative importance of the petroleum sector diminished, although this is mainly due to price effects and not so much to real changes. In the third and last place, in the course of the adjustment period the prices of petroleum fuels, basic petrochemicals and fertilizers were adjusted so as to bring them closer to international prices by which at least part of the implicit subsidies granted by the distorted price system to the more polluting activities was removed.

As demonstrated before, our estimates of the evolution of industrial pollution intensity do not support this hypothesis either. Contrary to expectations, the pollution intensity indicator increases sharply from 1981 to 1987 after relative stability during 1973-1981.

The main reason is again the substantial increase in public investments in heavily polluting activities, such as petrochemicals and fertilizers, which took place from 1978 to 1981 (i.e at the end of the petroleum-led growth period), but came into production only after the collapse of 1982.

Similarly, as regards the price adjustments of some environmentally sensitive goods (such as energy good, fertilizers and basic petrochemicals), these were brought in line with international

prices only towards the end of the stabilization period. Before that time, the discrete price increases of those goods had been eroded by the high inflation rates characteristic of the crisis and stabilization period.

Another important consequence of the Mexican trade liberalization, which was carried through during the period under consideration, is the enhanced role for competition in the Mexican economy which may improve the scope for the application of price-based pollution control measures significantly. As argued by Wheeler, such measures usually do not operate adequately in manipulated economies or for companies under soft-budget constraints. [11] Therefore, also the privatization of state-owned companies is expected to contribute to this goal.

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[11] This is one of the reasons why, according to Wheeler, textbook price-based pollution control measures in Poland proved quite unsatisfactory. See Wheeler (1991a).

3.4 Growth Recovery and North American Free Trade Agreement (1989-Present)

With the entrance of the Salinas administration in 1989, the Mexican economy entered a new episode which will probably be referred to in the future as that of growth recovery and of the negotiation of the North American Free Trade Agreement. The first two years of that period were characterized by a progressive stabilization of the macroeconomic panorama thanks to the renegotiation of foreign debt under the umbrella of the Brady plan, of which Mexico was the first beneficiary, and to the announcement of the reprivatization of the banking system.

The most outstanding achievements were the following:

i) a recovery of economic growth, in 1989 still at a modest rate of 3%, and in 1990 and 1991 at 4%

ii) inflation was brought down from over 50% in 1988 to 20% in 1989, then increased slightly to 30% in 1990, and was back slightly below 20% in 1991, and

iii) real interest rates in the domestic financial market declined sharply.

At the same time the trade liberalization carried through from 1985 to 1987 was consolidated further and the attempts to bring prices of public goods and services closer to international standards

continued.

An important feature of that period was the decision of the Salinas administration to enter into negotiations with the US aiming at the establishment of a Free Trade Agreement. At a later stage Canada joined the table. Given the fact that over 70% of Mexico's foreign trade is with the US and given the reciprocity of the concessions to be negotiated, such a North American Free Trade Agreement (NAFTA) might turn out of even greater importance to Mexico than the unilateral trade liberalization of the 1985-1987 period.

Another outstanding change with respect to the previous period is the renewed concern of the Salinas administration about the state of the environment. While the creation of the SEDUE (now SEDESOL), the ministry in charge of environmental protection (1982) and the enactment of the Law of Ecology and Environmental Protection (1988)[12] stem from the de-la-Madrid administration, during the Salinas administration budget allocations to the undersecretariat for the environment have been increased substantially, special programs are being put in place (such as actions to diminish air pollution in Mexico City), standards for industrial emissions are issued and environmental impact assessments (EIA), albeit already compulsory under the 1988 Law for all new projects and extensions of existing ones, are being enforced more strictly.

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[12] See Diario Oficial, 28 January 1988.

With the above indicated developments Mexico has taken the four standard benchmark steps necessary for the implementation of an environmental protection policy. According to Wheeler [13] these standard events are; (i) an environmental bill of rights, (ii) adoption of ambient standards, (iii) establishment of an environmental protection agency and (iv) enactment of environmental impact assessments. Herewith Mexico has set the stage for its environmental policies for the future.

3.5 Foreign-Trade Policies and the Environment

Resuming the findings of the foregoing subsections, the relation between foreign-trade policies and the pollution intensity of manufacturing industries is rather obscure. At our level of analysis there is no indication whatsoever that a more open trading system would be systematically either beneficial of harmful to the environment. Comparing the trade policy changes described in the present section with the pollution intensity estimates of the foregoing section one rather finds a number of unexpected features but the increase in the industrial pollution intensity in Mexico since the Second World War seems to be much more attributable to government participation in the productive sphere (petrochemicals and fertilizers) than to changes in foreign-trade policies.

These conclusions should be considered in light of two important

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[13] See Wheeler (1991a), pp. 81-82

limitations of our approach. The first is that the estimates of pollution intensity are based upon fixed pollution coefficients by industry so that only structural changes and no within-sector technology changes are reflected in the figures. The second is that trade liberalization in Mexico is fairly recent so that its effects upon the environment may not yet be reflected in the available data.

4. ENERGY PRICING AND ENERGY INTENSITY IN MEXICAN INDUSTRY

4.1 Introductory Remarks

In the foregoing section the pollution phenomenon was approached from the point of view of the emitting industry. I.e., the attention was upon the pollution that is generated with the production of certain products. The pollution caused by their consumption was only taken into account in case they were consumed in the production process of the manufacturing industry. Pollution derived fror intermediate consumption by other than manufacturing industries or from final uses was not considered. For example, the pollution generated by the process of petroleum refining was accounted for, but that caused by the consumption of refined petroleum products in the transport sector or by private transportation, was not. Alternatively, the pollution phenomenon can be approached from the point of view of the consumption of environmentally harmful goods, such as agrochemicals or petroleum fuels. That is the point of view adopted in the present section.

A similar dichotomy in approach is reflected in pollution control policies. I.e. one may approach pollution control either directly from the perspective of emissions or indirectly from the consumption of products causing pollution. Policies limiting of putting a tax on emissions belong to the direct approach, policies

limiting or taxing the use of environmentally harmful goods to the indirect approach.[14]

The first approach (i.e. taxing or controlling emissions) induces cleaner production technologies. For example, emissions taxes levied on refineries induce cleaner technologies in petroleum refining but leaves the pollution caused by the consumption of petroleum fuels unaffected, unless the higher costs resulting from those taxes are transferred to the prices of the fuels. Moreover, there is the disadvantage of a cumbersome and costly implementation. In fact, its implementation requires the measurement of emissions at all emission points which is often not feasible.

The second approach (i.e. taxing the goods whose consumption causes pollution) induces a cleaner consumption product mix but leaves production and consumption technologies unaffected. I.e., fuel taxes may lead to less fuel consumption but do not necessarily induce cleaner production technologies in petroleum refining or cleaner consumption technologies, e.g. through catalyzer use. However, the second approach has the advantage of a comparatively easy implementation. Environmental policies usually combine the two approaches.[15]

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[14] This distinction is proposed and discussed in Eskeland and Jimenez (1992)

[15] Eskeland (1992) recommends such a combination for automotive emission control in Mexico City.

In view of the importance of energy consumption for air pollution, this section reviews Mexico's energy pricing policies during the seventies and eighties. After presenting some rough estimates of the implicit subsidies involved in those pricing policies, some inferences are made about their possible consequences for the energy intensity of Mexican industrial activity.

4.2 Pricing Policies in General

Many developing countries have adopted pricing policies in order to expand the industrial sector, to foster agricultural development or to reach certain social objectives. Below-market prices are charged and subsidies or cross-subsidies are granted in a range of goods and services often supplied by the public sector. Apart from stimulating some economic activities, (at the cost of the rest of the economy), these pricing policies and subsidies may also affect the production technology of existing economic activities increasing the use of subsidized intermediates in the production process or stimulating the consumption of subsidized products by other than the target population. Such an increased intermediate use or final consumption may be harmful to the environment. Low-priced petroleum fuels may induce a fuel-intensive transport system, cheap fertilizers may lead to overfertilization of agricultural land, and below-cost water supply may lead to wasteful usage.

In Mexico, the experience with below-market price supply and (cross) subsidization has been pervasive. As can be expected, these policies flourished during the oil boom of the late seventies and were reversed at times of austerity in public spending or when more reliance was put on market forces. Below-market prices and (cross-) subsidies could and can still be found in areas such as petroleum fuels, electricity, fertilizers, water supply, waste disposal, credit etc.

In the following a few out of many possible examples are examined in somewhat more detail. In particular, energy pricing policies from 1970 to 1990 are given some attention because the adverse environmental impact of below-market prices for petroleum fuels and electricity may have been quite substantial given the size of the subsidies.

4.3 Energy Pricing

In Mexico, energy use is of particular importance in the environmental context as a relatively high percentage (up to 85%) is generated by the burning of hydrocarbons (petroleum fuels and natural gas). The supply of energy is almost entirely in the hands of the public sector due to constitutional constraints on private sector participation. Therefore, pricing policies are mainly defined by the government and were openly used in the late seventies and early eighties as an element to speed up

industrialization and economic development. The governmental energy program of 1980 stated: "The policy of industrial development based on the supply of energy at prices below international levels should continue. This is an instrument that a developing country with abundance of hydrocarbons can legitimately use in international competition".[16]

Pricing policies for PEMEX supplied petroleum fuels and natural gas have varied over time and have been different for different products. Generally speaking, hydrocarbons for intermediate use such as heavy fuel oils, diesel and natural gas have been kept cheap in comparison with international standards. Table 5 shows the relation between domestic prices and international prices or opportunity cost. The relation deteriorated especially in the period 1976-1981. Only since 1986 domestic prices have been brought more or less in line with international prices partly due to the sharp decline of international oil prices during that year.

Gasoline pricing policy has been slightly different from that for other petroleum fuels. Before the oil boom, gasoline prices were kept at levels somewhat higher than those in the US: During the petroleum-led growth period, i.e. from late 1976 until the end of 1981, prices remained almost constant, which gave rise to increasing price differentials with the international market, Since late 1981, however, domestic, gasoline prices were adjusted

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[16] Secretaría de Patrimonio y Fomento Industrial (1980).

continuously and reached again levels slightly higher than those prevailing in the international markets by the end of the eighties.

The relative price of liquid gas, which is mainly used for domestic purposes, declined considerably during the late seventies and early eighties. This decline continued until 1985 and was only reversed as of 1986. At present prices are still at a relatively low level compared to a similar product in the US market, approximately 40% of the price of propane in the US.

The decrease of the prices of hydrocarbons in Mexico, relatively to abroad as described above, took place partly as a result of increasing international prices after the 1973 and 1979/1980 oil price hikes. However, the domestic prices also decreased in real terms form the early seventies on to 1982 for natural gas, fuel oil and diesel, which are the main fuels used for energy generation in productive activities. From 1983 onwards, real prices of the fuels increased considerably. (See table 6.)

Products such as gasoline and liquid gas, however, showed a somewhat different picture. The main destination of these products is final consumption. Prices of gasoline in real terms were only significantly below their traditional 220-250 pesos/liter range (expressed in 1987 constant prices) from 1978 to 1982. Price policy for liquid gas allowed an almost uninterrupted decline in real terms form 1975 to 1985. As liquid gas is mainly used for

domestic purposes, social considerations have been an important element in this policy. Recent proposals to use liquid gas in public transport in Mexico City to combat the severe air pollution problems of the area, will probably lead to a pricing policy that links the price of liquid gas more closely to that of gasoline.

Pricing policies for electricity in Mexico include both rate levels implying important subsidies and a rate structure not reflecting long-run marginal costs. Subsidies from the public sector were realized both through subsidized fuel inputs and through direct transfers to the public sector electricity company.

Table 7 presents comparisons of electricity rates between Mexico and the US for alternative uses. From these comparisons it can be seen that the erosion of rates that took place in Mexico almost throughout the whole period, was particularly severe from 1982-87.

4.4. Implicit Subsidization

Evidently, below-market prices for petroleum fuels and natural gas implied heavy subsidies to the consumers of those products. Estimates of implicit subsidization, calculated as a price differential times domestic sales volumes, are presented in table 8. It should be noted that domestic sales include sales to electricity generation.

Table 8 reveals considerable subsidies reaching a record height of almost US $11 billion in 1981, i.e. almost 5% of GDP. Implicit subsidies remained of importance throughout the eighties, but were substantially reduced after 1986. It is interesting to observe that the subsidies of table 8 are slightly lower that the ones reported by Gil Diaz (1987), though in the same order of magnitude.

As far as electricity is concerned, a different methodology was adopted to estimate the magnitude of the subsidies. Although international rate comparisons can be used to get an idea of their influence upon the competitive position of local producers [17], foreign electricity rates may not be considered to represent opportunity costs in Mexico.

Therefore, implicit subsidization was estimated by direct government transfers and indirect subsidies through fuel inputs. It should be noted that the first element is imprecise as regards the time profile of the subsidies - i.e. direct transfers are often realized to cover losses which result from the rate subsidies granted earlier - and that the second element is also accounted for under fuel subsidies. Thus, totaling subsidies one should only take the first element to avoid double counting.

The estimates of electricity subsidies are presented in table 9. It appears that subsidies were particularly high during the period

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[17] See for example CONCAMIN (1991).

1980-1985 not only as a result of the fuel subsidies but also, and even more so, due to the direct government transfers.

4.5 Energy Intensity of Mexico's Industrial Sector

In the following the energy intensity of Mexico's industrial sector, the most important source of industrial air pollution, is considered in some detail. Table 10 presents energy use by Mexican industry by type of fuel for the period 1970-1990. Solid fuels are not included. For lack of more detailed information industry includes mining and construction, not electricity generation.

Table 10 shows a continuous increase of energy use during the period, only interrupted in 1984 and 1986 due to the negative growth of the industrial sector in those years. The compound annual growth rate of total energy use was 4.8%, that of electricity use 7.0%, of petroleum fuels 5.7% and that of natural gas 3.6%, reflecting relative shifts from natural gas to electricity and petroleum fuels.

The evolution of energy intensity - i.e. energy use over gross output at constant prices - is presented in table 11. Total energy intensity shows heavy fluctuations over time with peaks in 1978 and 1983, the latter one caused by a significant decline in industrial output with energy use still growing. Over the whole period, total energy intensity increases by 5.7% from 287.5 Tcalories per billion

pesos of output at 1970 prices to 303.8 in 1990. This growth in energy intensity is in strong contrast to Bacon's finding that manufacturing industries in OECD countries reduced their energy intensity by 38 percent.[18]

Considering the intensity in the use of different types of energy separately, one observes a somewhat different picture. Particularly the enormous substitution of natural gas by other sources of energy since 1983 is notorious. As a consequence, the increase in the intensity of petroleum fuels and electricity (24.5 and 59.1% respectively) is much more pronounced than that of energy as a whole. From an air pollution perspective, natural gas is most likely the least polluting fuel, per calory consumed.

In order to see to what extent energy intensity is influenced by energy prices, an attempt was made to establish a correlation between the intensity rates presented in table 11 and the domestic prices of petroleum fuels and natural gas of table 6. However, the exercise turned out relatively unsuccessful. Experimenting with different lags did not improve the picture. Thus, the changes in the energy intensity of Mexican industry appear to be poorly correlated to changes in energy prices.

Finally, an attempt was made to decompose the increase in petroleum-fuel and electricity intensity in a part due to

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[18] See Bacon (1992)

intersectoral changes in the production structure and a part due to intra-sectoral changes in energy intensity. Following Sterner (1985), these parts are called the structural and technological components.

Table 12 presents an approximation of the structural component of change. Calculations were performed with fixed 1970 input-output coefficients for petroleum fuels (sector 33) and electricity (sector 61) combined with gross output growth at constant 1970 prices per industrial sector. The input-coefficient for basic petrochemicals was corrected for fuel inputs for nonenergetic use. This was of some importance because of the explosive growth of the petrochemical sector as compared to the growth of the industrial sector as a whole.

The figures reported in the table represented the amount in 1970 pesos spent on petroleum fuels and electricity per 1000 1970 pesos of gross industrial output under the assumption of fixed 1970 input coefficients. That is to say, the time path of the figures reflects the extent to which the petroleum-fuel and electricity intensity of industry would have changed as a result of structural changes in the composition of the production basket. I.e., it stands for the structural component of energy intensity change.

The table demonstrates that petroleum-fuels intensity (at least its structural component) was fairly constant over the considered

period. There is only a 1% increase from 1970 to 1990 as compared to a 24% increase in total petroleum-fuel intensity. Although there are important methodological differences in the way these two figures are obtained, it seems to be justified to conclude that the change of petroleum-fuel intensity of Mexican industry is almost completely attributable to increases in energy use per unit of output within the sectors. On one hand, these findings are in agreement with those of Sterner (1985) in spite of the difference in the considered periods. Casler (1992), on the other hand, reports important contributions from the structural component to industrial energy demand in the US.

Similarly, table 12 shows a structural increase in electricity intensity of Mexican industry of 12% from 1970 to 1990 as compared to a total increase of 59%. Thus, again, most of the increase in energy intensity must be due to increases in energy use per unit of output within each subsector. Also here, the residual (or within sector) effect by far outweighs the effect of structural change.

Generally speaking, the conclusion seems justified that the resistance for economies to adjust structurally is much higher that to adjust technologically. This characteristic was also found by Moss et al. (1992) for Chile and Colombia. In that study the predominance of changes in fuel use intensities was found within sectors and, even, within firms. This finding underlines once more the limitations of the approach adopted in section 2 where only the

structural component of pollution intensity change was considered. However, it also alerts us to the possibility that each subsector has become more polluting during the period, rather than less.

4.6 Energy Intensity of Mexican Industry in an International Perspective

Although the changes in energy intensity of Mexican industry appear to be poorly correlated with real price changes of energy inputs, one may still defend the position that the fact that mexican energy intensity increased while, at the international scene, there was a pervasive trend towards energy saving is determined by the low pricing practices for energy goods in Mexico in comparison with the international markets.

To test this hypothesis an index of industrial energy intensity was constructed for petroleum fuels, natural gas and electricity for the OECD countries. The necessary information was collected from the OECD energy balances and indicators of industrial production. These OECD indexes were compared with similar energy intensity indexes for Mexico derived form the information contained in table 11. The results are brought together in table 13.

From the table it appears that, although Mexico's industrial energy intensity grew by only 5.7% over the period 1970-1990, in comparison with industrial energy intensity of the OECD countries

its relative increase was 63.3%. See also Bacon (1992). Similar findings hold for the individual intensities of the different sources of energy. Only for natural gas is Mexico's intensity reduction almost equal to that of the OECD countries.

Attempting to establish a simple translog least-square correlation between the comparative energy-intensity indexes Mexico-OECD as the dependant variable and the corresponding relative prices of table 5 as the independent variable, one arrives at the following results:

i) For lack of information on relative prices for fuel oil during the seventies - fuel oil is by far the most important industrial petroleum fuel -, no results can be reported for petroleum fuels. However, a close look at the behavior of the comparative index and relative prices, as far as available, suggests that the correlation must be poor due to high values of the comparative index for years around 1976 and towards the end of the eighties without explanation in the form of low relative prices during those years or the years before.

ii) For natural gas the correlation performed best with a lag of four years leading to a highly significant (T value of 7) negative elasticity equal to -.286. That is to say, one percent increase in the relative price of natural gas leads to a decrease of .286 percent in the comparative fuel intensity four years later.

iii) Likewise, for electricity the correlation performed best with a lag of four years. Again, a highly significant (T-value of almost 8) negative elasticity was found of -.485, implying that a one percent increase in the relative price of electricity leads to almost half a percent decrease in the comparative electricity intensity four years later.

Altogether, the comparative energy intensity of the industrial sector in Mexico appears to be rather firmly correlated with relative fuels prices in spite of the fact that the correlation between "absolute" energy intensity and real energy prices is poor. A possible explanation is that standardized energy-saving technologies were imported in Mexico even when real prices did not stimulate such technologies. Such a process might have interfered with the expected relation between "absolute" energy intensities and real prices, but not with the relation between relative energy intensities and relative prices. However, to come to a fully satisfactory explanation further analysis would be necessary.

explained by the growth of public sector investments from 1978 to 1982 in the petrochemical and fertilizer industries.

It should be borne in mind that the pollution intensity figures presented in this paper are derived from US emission data for 1987 using fixed pollution coefficients by subsector. Thus, changes in the estimates of total industrial pollution intensity are completely produced by structural shifts in the composition of manufacturing output. Changes in production technologies and other changes within subsectors that lead to differences in emissions per unit of output, in time or between the US and Mexico are not considered. Therefore, neither the possibility of technology choice nor the influence of economic policies, e.g. trade policies, on this choice were taken into account in the estimates.

With that in mind, and in view of the fact that fuel use by subsector could give us an indication of emission-relevant changes within subsectors not captured in our estimates, a brief analysis of the energy intensity of Mexican industry in relation to energy pricing policies between 1970 and 1990 was performed. It was found that energy pricing policies led to annual implicit subsidies for energy products (i.e. petroleum fuels, gas and electricity) of between US $8 and 13 billion, or 4 to 7% of GDP, from 1980 to 1985.

Energy intensity of Mexican industry increased by 5.7% from 1970 to 1990 while industrial energy intensity in OECD countries decreased

5. CONCLUSIONS

Industrial development over the past forty years in Mexico has been remarkable. Industrial production increased by a factor 10 between 1950 and 1989. During same period, industrial policies underwent dramatic changes. From an inward-looking strategy of progressive import substitution, through a period of public-sector-led growth, policies were changed to a more market-oriented and outward-looking strategy.

The impact of industrial development on the environment has been substantial. Our estimates suggest that the environment did not only deteriorate as a result of the growth of manufacturing output but also due to a considerable shift towards the more polluting subsectors leading to an increase in the pollution intensity, i.e. the amount of emissions per unit of manufacturing output.

Between 1950 and 1970 the pollution intensity of the manufacturing industry calculated with fixed emission coefficients increased by 50%. The growing participation of the production of intermediates in total manufacturing output is the main cause of this increase.

Industrial pollution intensity, according to our estimates, increased by another 25% from 1970 to 1989, particularly in the second half of this period. This increase is almost completely

by 35.3% over the same period. The increase in Mexican energy intensity is the result of a 24.5% increase of the intensity in the use of petroleum fuels, a 59.2% increase in that of electricity and a 15.4% decrease in that of natural gas.

The increase in petroleum-fuel and electricity intensity appears to be almost exclusively attributable to technological and other changes within subsectors, not to structural shifts in the production basket towards more energy intensive sectors.

An attempt to establish a correlation between Mexican energy intensity and real domestic energy prices turned out unsuccessful, but a similar exercise establishing a correlation between the differential in energy intensity between Mexico and OECD countries, on one hand, and energy price differentials, on the other, led to a highly significant negative correlation between these two variables for both natural gas and electricity. The results for petroleum fuels were inconclusive.

From these results it seems justified to conclude that the fact that Mexican industry did not follow the trends towards energy saving adopted by the OECD countries after the oil price shocks of 1973 and 1979, is for a good deal attributable to governmental energy pricing practices keeping energy prices far below international standards in the late seventies and early eighties.

The reduction of implicit subsidies to energy as of 1986, partly derived from lower international energy prices but also due to a change in domestic energy pricing policies, such as to bring prices in line with international prices or opportunity costs, and leading to increased prices in real terms, are expected to induce a lower increase of energy demand during a period of renewed economic growth.

Last but not least, the notable increase in pollution intensity of the Mexican manufacturing industry which characterizes its industrial development since the Second World War can, at this level of analysis, hardly be attributed to the foreign-trade policies which, until very recently, were strongly biased in favor of the less polluting consumer good industries. They rather seem to be due to structural changes of a more or less autonomous nature - such as the increasing importance of intermediates -, to public investment in heavily polluting activities - particularly petro and agrochemicals - and, also, to a considerable extent, to low pricing policies for publicly provided petroleum fuels and electricity.

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TABLE 1. EVOLUTION OF THE POLLUTION INDICATOR AVHUML*/

Year	First Series	Second Series
1950	5.66	
1951	5.74	
1952	5.82	
1953	5.81	
1954	5.89	
1955	6.35	
1956	6.41	
1957	6.32	
1958	6.37	
1959	6.59	
1960	6.89	
1961	6.97	
1962	7.36	
1963	7.49	
1964	7.46	
1965	7.58	
1966	7.60	
1967	7.61	
1968	7.79	
1969	8.11	
1970	8.11	7.13
1971	8.33	7.30
1972		7.58
1973		7.68
1974		7.53
1975		7.46
1976		7.66
1977		7.80
1978		7.71
1979		7.74
1980		7.72
1981		7.83
1982		8.18
1983		8.58
1984		8.62
1985		8.63
1986		8.80
1987		9.17
1988		9.04
1989		9.08

*/ For an explanation of the indicator see text.

FIGURE 1. EVOLUTION OF THE POLLUTION INDICATOR AVHUML

MEXICO: 1950-1989

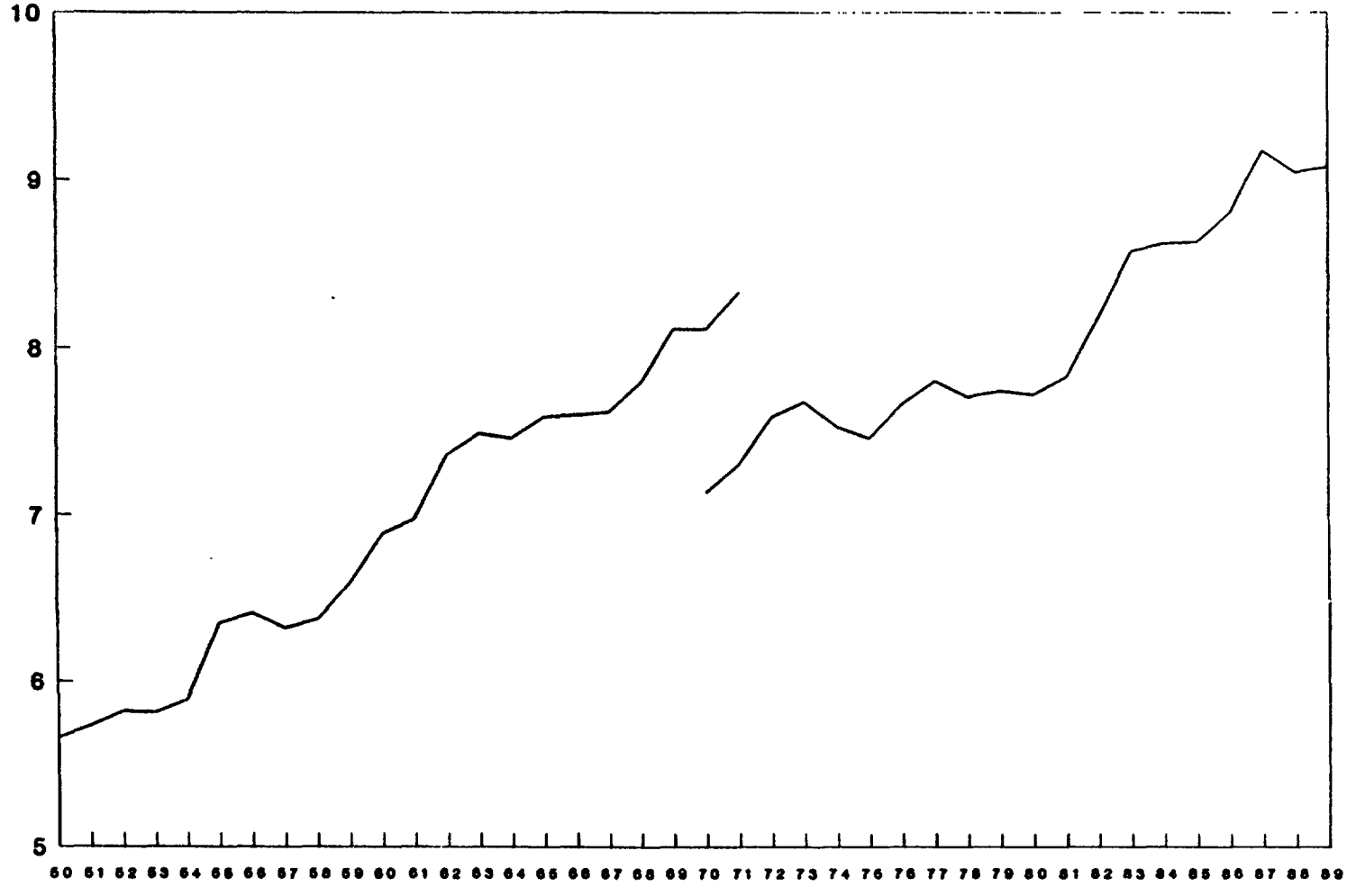

TABLE 2. SECTORAL CONTRIBUTIONS TO POLLUTION INTENSITY (AVHUML %) */

SECTOR			1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
340	I	Basic Petrochemicals	4.3	4.6	4.9	4.9	5.8	6.1	6.3	5.9	6.2	6.5	6.7	7.3	8.2	10.5	9.9	9.8	11.6	12.7	13.2	14.6
360	I	Fertilizers	10.2	10.4	11.2	10.8	10.6	10.5	10.9	11.0	9.4	9.3	9.3	10.3	13.8	12.5	12.8	13.3	12.9	14.1	13.2	13.4
371	I	Synthetic Fibers	3.6	4.2	4.7	5.4	5.4	5.9	5.9	6.3	6.1	6.1	5.9	5.5	5.1	5.5	5.6	5.5	5.5	5.8	6.0	5.6
461	I	Iron & Steel Products	5.6	5.2	5.2	5.3	5.5	5.4	5.0	5.0	5.5	5.5	5.3	5.0	4.4	4.4	4.6	4.4	4.4	4.3	4.4	4.2
330	I	Petroleum Refining	4.5	4.5	4.3	4.3	4.3	4.3	4.4	4.4	4.4	4.5	4.8	4.8	4.6	4.6	4.6	4.5	4.6	4.4	4.3	4.1
370	I	Synthetic Resins	1.8	1.9	2.0	1.9	2.0	2.0	2.2	2.1	2.3	2.6	2.9	2.9	3.0	3.5	3.9	4.0	4.1	4.4	4.4	4.1
352	I	Basic Chemicals	3.4	3.2	3.0	3.0	3.1	2.8	2.9	3.1	3.0	2.7	2.7	2.8	3.2	4.0	4.0	3.9	4.1	4.1	4.2	4.0
420	I	Plastic Materials	3.0	2.9	3.1	3.0	2.9	2.9	3.1	3.2	3.3	3.3	3.7	4.0	3.5	3.5	3.6	3.7	3.7	3.6	3.7	3.8
310	I	Wood Pulp	2.7	2.5	2.4	2.4	2.6	2.3	2.5	2.5	2.6	2.5	2.6	2.5	2.6	2.6	2.7	2.8	2.9	2.8	2.8	2.7
460	I	Iron & Steel Milling	3.6	3.3	3.4	3.3	3.4	3.3	3.2	3.5	3.9	3.7	3.5	3.4	3.1	3.0	3.1	2.9	2.9	2.8	2.8	2.7
400	I	Insecticides	3.6	5.1	5.0	5.7	3.5	4.2	3.7	3.7	3.6	3.7	3.3	3.5	3.0	3.1	3.0	3.2	2.9	2.5	2.3	2.5
380	C	Pharmaceutical Products	2.4	2.6	2.7	2.8	2.8	3.0	3.0	3.0	2.8	2.8	2.7	2.7	2.7	2.9	2.7	2.6	2.5	2.2	2.3	2.4
312	I	Paperboard Packaging Materials	3.1	2.7	2.7	2.9	3.1	2.8	3.0	2.8	2.8	2.9	3.1	2.8	2.7	2.7	2.5	2.5	2.4	2.3	2.3	2.5
350	I	Pigments & Paints	1.9	1.9	2.0	2.1	2.3	2.0	2.3	2.8	2.8	2.7	2.6	2.3	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1
243	I	Soft Fiber Textiles	3.1	3.5	3.4	3.1	3.0	3.0	3.0	3.0	2.9	2.9	2.7	2.6	2.4	2.4	2.2	2.3	2.2	2.0	2.0	1.9
321	C	Printing	2.1	2.0	1.9	1.8	1.8	1.8	2.0	2.0	1.9	1.9	2.1	2.0	1.9	1.8	1.8	1.7	1.7	1.7	1.8	1.7
351	I	Industrial Gases	1.5	1.6	1.8	1.9	1.9	2.0	2.1	2.1	2.1	2.2	2.3	2.2	2.2	2.0	2.0	2.1	1.9	1.7	1.7	1.6
470	I	Copper Milling	1.3	1.2	1.2	1.2	1.3	1.2	1.2	1.1	1.1	1.2	1.1	1.2	1.0	0.9	1.0	0.9	0.9	1.2	1.2	1.2
300	C	Wooden Furniture	1.7	1.5	1.5	1.4	1.5	1.5	1.5	1.6	1.6	1.6	1.7	1.6	1.4	1.3	1.2	1.2	1.2	1.1	1.1	1.0
320	C	Publishing	2.0	1.9	1.7	1.5	1.3	1.5	1.5	1.3	1.2	1.2	1.3	1.3	1.3	1.0	1.0	1.2	1.1	1.0	1.0	1.0
		All Other Sectors	33.6	32.5	31	30.3	30.8	30.3	29.3	28.6	29.3	29.4	29.1	28.3	26.7	24.5	24.6	24.5	23.2	22.2	22.2	21.9
		Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
		Total Intensity	7.1	7.3	7.6	7.7	7.5	7.5	7.7	7.8	7.7	7.7	7.7	7.8	8.2	8.6	8.6	8.6	8.8	9.2	9.0	9.1

*/ Own calculations.

TABLE 3. COVERAGE OF THE MEXICAN IMPORT LICENSING SYSTEM: 1946–1990

Year	number of tariff positions			import value*/	
	total	controlled	%	controlled	free
1946	na**/	0	0%	0%	100%
1947	na	na	na	18%	82%
1951	release of controls				
1954	reimposition and extension of controls				
1956	4,129	1,376	33%	28%	72%
1957	na	na	na	35%	65%
1958	na	na	na	42%	58%
1959	na	na	na	43%	57%
1960	na	na	na	38%	62%
1961	na	na	na	54%	46%
1962	5,204	2,313	44%	53%	47%
1963	na	na	na	63%	37%
1964	na	na	na	65%	35%
1965	na	na	na	60%	40%
1966	11,000	6,600	60%	62%	38%
1967	na	na	na	65%	35%
1968	na	na	na	64%	36%
1969	na	na	na	65%	35%
1970	12,900	8,400	65%	68%	32%
1971	na	na	na	68%	32%
1972	na	na	na	66%	34%
1973	16,000	12,800	80%	70%	30%
1974	na	na	na	82%	18%
1975	na	na	na	68%	32%
1976	na	na	na	91%	9%
1977	7,340	5,684	77%	67%	33%
1978	7,453	3,239	43%	64%	36%
1979	7,587	2,359	31%	60%	40%
1980	7,776	1,866	24%	76%	24%
1981	7,877	2,083	26%	83%	17%
1982	8,017	8,017	100%	100%	0%
1983	8,032	8,032	100%	100%	0%
1984	8,063	5,219	65%	83%	17%
1985	8,106	842	10%	33%	76%
1986	8,239	651	8%	28%	72%
1987	8,458	342	4%	26%	74%
1988	11,979	347	3%	21%	79%
1989	11,872	332	3%	17%	83%
1990	11,839	233	2%	13%	87%

*/ Import value weights may not fit the year of the license regime.

**/ Not available

Sources: Timothy King (1970), Bela Balassa (1983), SECOFI direct consultation.

TABLE 4. REAL OUTPUT GROWTH OF MEXICAN ECONOMIC ACTIVITIES
(compound annual growth rates, %)

	Import Substitution			Petroleum	Crisis and
	Stage 1	Stage 2	Stage 3	led-Growth	Stabilization
	1950-60	1890	1970-76	1976-81	1981-89
Agriculture	5.0	4.3	3.2	3.9	-0.2
Mining	4.3	4.9	5.9	14.9	1.3
Manufacturing	6.6	8.6	6.4	9.3	1.3
Intermediates	7.1	9.1	6.9	10.3	2.1
Consumption	5.9	7.8	5.0	6.7	1.1
Capital Goods	11.4	12.2	7.9	8.4	-1.7
Construction	7.3	8.3	6.8	9.9	-4.1
Electricity	11.5	11.9	10.2	8.6	3.6
Services	5.5	6.7	6.9	7.5	0.8
Total	5.9	7.2	6.3	7.5	0.8
Petroleum	7.8	7.0	7.6	15.4	1.0
Exploitation	na	na	8.4	22.6	-0.8
Refining	na	na	7.3	9.8	1.0
Pollution intensive sectors					
Agrochemicals	27.0	11.0	8.5	6.6	4.4
Petrochemicals	-	42.7	14.7	11.1	12.3
Basic Chemicals	14.8	12.6	8.8	8.4	4.5
Synthetic Fibers/ Resins	13.3	18.1	15.1	8.9	4.7
Basic metals	12.0	9.7	6.1	8.0	0.8

Source: Annexes 1 and 2.

TABLE 5. RELATION BETWEEN DOMESTIC PRICES AND OPPORTUNITY COSTS OR EXTERNAL PRICES FOR PETROLEUM FUELS AND NATURAL GAS

	Natural gas*/	Fuel oil**/	Diesel**/	Liquid Gas*/	Gasoline*/
1970	0.798	n.a.	n.a.	n.a.	0.868
1971	0.720	n.a.	n.a.	n.a.	0.851
1972	0.762	n.a.	n.a.	n.a.	0.858
1973	0.682	n.a.	n.a.	n.a.	1.118
1974	0.656	n.a.	n.a.	n.a.	0.815
1975	0.457	n.a.	n.a.	n.a.	1.147
1976	0.286	n.a.	0.374	1.03	0.892
1977	0.234	n.a.	0.301	0.62	0.771
1978	0.204	n.a.	0.302	0.64	0.760
1979	0.188	0.110	0.288	0.60	0.554
1980	0.198	0.118	0.163	0.44	0.396
1981	0.195	0.148	0.180	0.46	0.348
1982	0.161	0.117	0.305	0.35	0.573
1983	0.246	0.144	0.571	0.21	0.673
1984	0.438	0.247	0.710	0.20	0.759
1985	0.548	0.333	0.738	0.17	0.769
1986	0.652	0.661	1.419	0.30	0.781
1987	0.701	0.434	1.175	0.33	0.716
1988	0.822	0.754	1.711	0.41	0.957

*/ Domestic price related to price of similar product in the US.

**/ Domestic price related to mexican f.o.b. export price

Source: CFE (1990).

TABLE 6. DOMESTIC PRICES PETROLEUM FUELS AND NATURAL GAS (In constant 1987 prices*)

	Natural gas $/M3	Fuel oil $Lt	Diesel $/Lt	Liquid gas $/Lt	Gasoline (leaded) $/Lt
1970	25.81	25.17	68.82	98.84	215.08
1971	24.44	23.84	65.18	93.70	203.70
1972	26.84	22.44	61.35	88.19	191.72
1973	23.73	19.84	54.23	77.96	237.27
1974	24.84	27.60	69.01	151.81	193.22
1975	21.48	23.87	59.68	133.67	250.64
1976	17.99	19.99	49.96	121.91	209.85
1977	19.88	19.88	49.71	98.66	214.14
1978	17.05	17.05	42.63	84.61	183.65
1979	15.27	15.45	54.53	70.34	152.68
1980	16.10	16.12	42.37	54.66	118.64
1981	16.31	16.39	33.28	56.25	96.19
1982	19.63	14.98	72.12	52.27	174.15
1983	43.32	26.29	148.69	51.70	259.79
1984	67.06	43.50	159.62	42.93	247.04
1985	78.17	46.69	162.38	36.01	246.35
1986	101.99	60.76	225.20	86.45	257.07
1987	85.33	52.22	205.36	83.19	228.72
1988	89.91	55.02	218.62	88.12	242.21

* Calculated with GDP implicit price deflators.

Source: CFE (1990).

TABLE 7. COMPARISON OF ELECTRICITY RATES BETWEEN MEXICO AND THE US (domestic rate/US rate)

	Commercial	Industrial	Public light	Domestic	Agricultura
1970	1.843	1.707	0.384	1.790	1.175
1971	1.749	1.576	0.367	1.715	1.159
1972	1.665	1.479	0.350	1.638	1.004
1973	1.649	1.443	0.337	1.628	0.981
1974	1.596	1.307	0.316	1.648	0.716
1975	1.552	1.161	0.325	1.501	0.505
1976	1.410	1.078	0.356	1.251	0.386
1977	1.080	0.987	0.610	0.977	0.441
1978	1.013	0.897	0.570	0.920	0.374
1979	1.094	0.934	0.526	0.975	0.305
1980	1.190	1.052	0.503	1.008	0.227
1981	1.184	1.003	0.424	1.007	0.189
1982	0.786	0.650	0.238	0.650	0.101
1983	0.636	0.613	0.260	0.513	0.070
1984	0.772	0.690	0.309	0.566	0.132
1985	0.784	0.679	0.307	0.521	0.144
1986	0.644	0.529	0.258	0.398	0.105
1987	0.647	0.541	0.257	0.318	0.098
1988	0.838	0.707	0.339	0.376	0.169
Importance in domestic sales 1988	8.7%	55.9%	5.3%	20.1%	7.8%

Source: CFE (1991).

TABLE 8. IMPLICIT SUBSIDIZATION* (in million US$)

	Natural gas	Fuel Oil	Diesel	Liquid gas	Gasoline	Total
1970	na	na	na	na	199.3	na
1975	191.6	na	na	na	-206.5	na
1976	na	na	na	na	na	na
1977	na	na	na	na	na	na
1978	551.3	na	7.18.7	140.7	588.7	na
1979	805.3	1,300.4	1,280.4	191.3	1,655.9	5,233.3
1980	1,048.3	1,762.6	2,796.2	423.9	3,520.8	9,551.8
1981	1,331.2	1,682.9	2,508.4	541.9	4,742.3	10,806.7
1982	1,720.2	1,827.1	2,208.5	782.8	2,971.3	9,509.9
1983	1,649.4	2,070.2	966.2	1,222.9	1,921.5	7,830.2
1984	1,210.6	2,195.6	687.8	1,541.0	1,447.2	7,082.2
1985	926.2	1,701.3	607.8	1,650.4	1,370.5	6,256.2
1986	550.2	482.2	-487.2	1,434.1	1,033.2	2,962.2
1987	410.8	1,137.8	-243.8	1,280,7	1,432.7	4,018.2
1988	302.0	36.1	-869.1	1,177.8	311.0	1,288.8

*/ Calculated as price differentials times domestic sales volumes.

Source: Calculations on basis of CFE (1990), SEMIP (1991).

TABLE 9. IMPLICIT SUBSIDIZATION ELECTRICITY
(million US dollars)

	Direct transfers	Fuel subsidies	Total
1979	666.5	1,053.1	1,719.6
1980	1,912.8	1,604.0	3,516.8
1981	2,537.3	1,539.3	4,076.6
1982	2,792.4	1,671.0	4,463.4
1983	2,553.1	1,676.9	4,230.0
1984	2,105.2	1,641.2	3,746.4
1985	2,144.4	1,209.9	3,354.3
1986	1,095.3	401.8	1,497.1
1987	908.6	815.1	1,723.7
1988	517.7	302.8	820.5

Source: Own calculations based on CFE (1990), SEMIP (1991).

TABLE 10. ENERGY USE BY MEXICAN INDUSTRY*/ (in T-calories)

YEAR	PETROLEUM FUELS				NATURAL	ELECTRI-	TOTAL
	DIESEL	FUEL OIL	OTHER	TOTAL	GAS	CITY	
1970	5,495	23,819	2,614	31,928	59,004	11,938	102,870
1971	5,599	23,591	2,601	31,791	61,607	12,878	106,276
1972	6,212	27,898	2,729	36,839	64,785	14,358	115,982
1973	6,690	25,596	2,817	35,103	72,540	15,560	123,203
1974	7,258	35,164	2,889	45,311	73,210	16,262	134,783
1975	7,543	43,886	3,306	54,735	75,551	17,541	147,827
1976	7,862	53,393	3,430	64,685	75,811	19,313	159,809
1977	8,133	46,720	3,537	58,390	79,368	20,932	158,690
1978	8,804	53,310	3,682	65,796	95,131	22,837	183,764
1979	9,610	49,794	3,761	63,165	110,578	24,882	198,625
1980	10,494	45,856	4,074	60,424	119,355	25,976	205,755
1981	11,237	50,565	4,359	66,161	135,030	28,426	229,617
1982	9,155	49,202	4,515	62,872	150,373	29,769	243,014
1983	8,202	50,460	4,903	63,565	161,264	30,632	255,461
1984	13,151	52,376	4,668	70,195	138,187	33,386	241,768
1985	13,500	62,813	4,680	80,993	138,228	35,342	254,563
1986	10,728	60,270	4,858	75,856	116,304	36,323	228,483
1987	9,816	69,359	4,249	83,424	123,267	39,198	245,889
1988	9,700	63,235	4,147	77,082	117,909	41,477	236,468
1989	10,117	72,001	4,407	86,525	108,648	44,580	239,753
1990	10,801	79,326	5,978	96,105	120,704	45,929	262,738

*/ Solid fuels are not included. Industry includes mining and construction. Energy use by the basic petrochemical sector is included, but natural gas and petroleum fuels used for transformation are not. To avoid double counting, electricity generation is not included.

Source: SEMIP, Balance Nacional de Energia: 1965–1985 and 1990.

TABLE 11. ENERGY INTENSITY OF MEXICAN INDUSTRY */ (in T-cal/billion 1970 pesos of output).

YEAR	PETROLEUM FUELS				NATURAL	ELECTRI-	TOTAL
	DIESEL	FUEL OIL	OTHER	TOTAL	GAS	CITY	
1970	15.36	66.57	7.31	89.23	164.91	33.37	287.51
1971	15.24	64.21	7.08	86.53	167.68	35.05	289.27
1972	15.45	69.40	6.79	91.64	161.16	35.72	288.51
1973	15.29	58.49	6.44	80.22	165.77	35.56	281.54
1974	15.34	74.33	6.11	95.77	154.75	34.37	284.89
1975	15.19	88.39	6.66	110.24	152.17	35.33	297.74
1976	15.13	102.74	6.60	124.47	145.87	37.16	307.50
1977	15.17	87.16	6.60	108.94	148.07	39.05	296.06
1978	14.88	90.10	6.22	111.20	160.78	38.60	310.57
1979	14.63	75.80	5.73	96.16	168.33	37.88	302.37
1980	14.58	63.71	5.66	83.95	165.82	36.09	285.85
1981	14.33	64.47	5.56	84.36	172.17	36.24	292.77
1982	11.89	63.88	5.86	81.63	195.24	38.65	315.52
1983	11.57	71.17	6.92	89.65	227.45	43.20	360.31
1984	17.74	70.66	6.30	94.70	186.44	45.04	326.18
1985	17.44	81.16	6.05	104.66	178.61	45.67	328.94
1986	14.69	82.54	6.65	103.88	159.28	49.74	312.90
1987	12.99	91.78	5.62	110.39	163.12	51.87	325.38
1988	12.54	81.73	5.36	99.63	152.40	53.61	305.63
1989	12.36	88.00	5.39	105.75	132.79	54.49	293.02
1990	12.49	91.72	6.91	111.12	139.56	53.10	303.78

*/ Solid fuels are not included. industry includes mining and construction.
To avoid double counting, electricity generation is not included.

Source: Table 10 and annex 2.

TABLE 12. ENERGY INTENSITY OF INDUSTRY: STRUCTURAL COMPONENT */
(1970 pesos of energy use per 1000 1970 pesos of output)

YEAR	PETROLEUM FUELS	ELECTRICITY
1970	10.05	8.08
1971	9.99	8.08
1972	9.91	8.13
1973	9.94	8.07
1974	9.86	8.18
1975	9.96	8.11
1976	10.07	8.19
1977	10.09	8.31
1978	10.09	8.36
1979	10.16	8.35
1980	10.32	8.39
1981	10.41	8.34
1982	10.50	8.52
1983	10.50	8.79
1984	10.48	8.84
1985	10.41	8.83
1986	10.51	8.92
1987	10.54	9.12
1988	10.32	9.12
1989	10.15	9.03

*/ Calculated with fixed 1970 input–output coefficients.

TABLE 13. INDUSTRIAL ENERGY INTENSITY IN OECD COUNTRIES AND MEXICO. (1970 = 100)

YEAR	PETROLEUM FUELS			NATURAL GAS			ELECTRICITY			TOTAL		
	OECD	MEX	MEX/OECD	OECD	MEX	MEX/OECD	OECD	MEX	MEX/OECD	OECD	MEX	MEX/OECD
1970	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1971	97.6	97.0	99.4	103.4	101.7	98.4	101.0	105.1	104.0	99.9	100.6	100.7
1972	96.7	102.7	106.2	101.1	97.7	96.7	101.3	107.0	105.7	98.8	100.3	101.6
1973	99.9	89.9	89.9	106.0	100.5	94.8	105.6	106.6	100.9	102.8	97.9	95.3
1974	95.5	107.3	112.3	105.0	93.8	89.4	107.0	103.0	96.3	100.4	99.1	98.7
1975	91.3	123.5	135.3	100.0	92.3	92.3	112.4	105.9	94.2	97.7	103.6	106.0
1976	90.2	139.5	154.7	94.8	88.5	93.3	110.5	111.4	100.8	95.2	107.0	112.4
1977	92.2	122.1	132.5	93.2	89.8	96.4	110.0	117.0	106.4	95.7	103.0	107.6
1978	85.6	124.6	145.5	90.1	97.5	108.2	110.6	115.7	104.6	91.4	108.0	118.1
1979	89.0	107.8	121.1	88.7	102.1	115.0	109.4	113.5	103.7	92.6	105.2	113.6
1980	78.7	94.1	119.5	92.4	100.6	108.8	107.5	108.2	100.6	88.0	99.4	113.0
1981	70.0	94.5	135.1	92.0	104.4	113.5	107.3	108.6	101.2	83.2	101.8	122.4
1982	67.5	91.5	135.6	82.1	118.4	144.3	105.3	115.8	110.1	78.6	109.7	139.7
1983	59.6	100.5	168.6	77.0	137.9	179.2	103.7	129.5	124.9	72.6	125.3	172.5
1984	56.7	106.1	187.1	80.1	113.1	141.1	105.5	135.0	128.0	72.4	113.5	156.7
1985	52.8	117.3	222.1	75.6	108.3	143.2	104.2	136.9	131.4	68.8	114.4	166.3
1986	52.5	116.4	221.5	71.1	96.6	135.8	101.6	149.1	146.8	66.8	108.8	162.9
1987	51.5	123.7	240.2	74.2	98.9	133.4	103.0	155.5	151.0	67.4	113.2	167.8
1988	48.9	111.6	228.4	74.6	92.4	123.9	102.1	160.7	157.4	66.0	106.3	161.0
1989	46.6	118.5	254.2	76.8	80.5	104.8	102.3	163.3	159.7	65.5	101.9	155.5
1990	44.1	124.5	282.3	78.6	84.6	107.7	102.0	159.2	156.0	64.7	105.7	163.3

Sources: OECD, Energy Balances and Indicators of Industrial Production, various issues; table 11.

ANNEX 1. VALUE OF PRODUCTION (MILLIONS OF 1960 PESOS) PAGE 1

SECTOR	TIPO	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
1 Agricultura		11619	12122	11837	12426	14764	15872	15512	16706	18163	17557	18649
2 Ganaderia		6458	6738	7368	7820	8274	8704	9217	10078	10729	10866	11637
3 Silvicultura		1140	1144	849	804	828	872	1016	928	828	904	1012
4 Pesca		335	343	322	309	314	381	434	414	463	529	577
5 Explotacion de Minas Metalicas		3182	3116	3341	3281	3020	3230	3084	3256	3188	3038	3109
6 Explotacion de Minerales No Metalicos		310	356	432	462	473	657	857	1046	1022	1110	1202
7a Petroleo	I	4502	4828	5149	5335	5989	6823	7066	7576	8083	8808	8575
7b Produccion Petroquimica Basica	I	0	6	12	9	6	8	5	13	9	15	52
8 Carne Leche y Productos Lacteos	C	2081	2720	2782	2408	2454	2460	2550	2741	3420	3618	3551
9 Molienda de Trigo Nixtamal, Pan	C	6728	6875	6541	7174	7719	7456	7536	8566	9372	8664	8782
10 Otros Productos Alimenticios	C	5836	6016	6510	6717	7256	7557	7787	9167	9284	10368	11602
11 Elaboracion de Bebidas	C	2042	2137	2419	2497	2596	3128	3529	3831	3862	4019	4336
12 Manufactura de Productos de Tabaco	C	529	573	776	918	901	1006	1091	1051	1119	1163	1275
13 Textiles de Fibras Blandas	I	3583	3490	3789	3338	3638	4036	4156	4306	4503	4699	4885
14 Otras Industrias Textiles	I	936	886	904	847	973	1018	1032	1103	1141	1381	1446
15 Calzado, Prendas de Vestir etc.	C	3670	3675	3909	3773	4137	4387	4544	4740	4935	5174	5429
16 Industria Maderera	I	1587	1622	1234	1206	1276	1362	1627	1628	1436	1912	1633
17 Papel y productos de Papel	I	1196	1296	1241	1291	1386	1536	1746	2103	1906	2042	2183
18 Imprenta y Editorial	C	820	961	960	944	978	1030	1115	1186	1479	1536	1590
19 Cuero y Productos de Cuero	I	846	903	944	889	960	1170	1327	1267	1122	1284	1167
20 Productos de Hule	C	509	657	630	623	719	783	850	878	1031	1162	1309
21 Quimicos Basicos	I	266	287	282	383	377	506	494	649	735	821	1061
22 Fibras Sinteticas, Resinas, Plasticos	I	204	277	306	256	367	462	602	445	521	601	710
23 Abonos, Fertilizantes, Insecticidas	I	67	133	156	155	186	275	273	273	344	469	623
24 Jabones y Detergentes	I	556	480	473	552	643	731	749	771	875	1026	1103
25 Farmaceuticos y Medicinas	C	812	911	1026	1081	1291	1322	1251	1431	1486	1691	1876
26 Cosmeticos	C	272	300	323	349	396	472	469	512	570	669	786
27 Otras Industrias Quimicas	I	420	464	499	539	615	729	724	791	881	1020	1214
28 Productos Minerales No Metalicos	I	1180	1303	1287	1403	1502	1713	1974	2142	2067	2312	2528
29 Industrias Metalicas Basicas	I	1615	1509	1636	1783	2122	2639	3204	3674	4019	4229	4669
30 Productos Metalicos	I	1004	1142	1231	1370	1462	1750	2042	2148	2188	2310	2528
31 Maquinaria	K	423	463	416	445	543	530	564	776	691	731	669
32 Maquinaria y Aparatos Electricos	K	693	776	823	885	981	1284	1509	1846	1812	2117	2238
33 Equipo y Material de Transporte	K	325	356	439	467	531	695	768	899	964	1065	1137
34 Vehiculos, Automoviles y Partes	C	928	1844	1901	1505	1456	1492	1955	1896	1793	2376	2357
35 Industrias Manufactureras Diversas	C	569	561	648	661	718	878	1070	1234	1245	1362	1378
36 Construccion e Instalaciones		6844	6784	9510	7518	8190	9021	10639	11647	11663	11882	13936
37 Electricidad		741	853	948	1045	1164	1288	1477	1660	1806	1962	2206
38 Servicios de Esparcimiento		1380	1423	1480	1528	1632	1674	1805	1778	1724	1813	2084
39 Transportes		4586	4836	5157	5207	5529	5836	6364	6566	6736	6984	7143
40 Comunicaciones		544	572	614	641	672	700	728	753	789	854	897
41 Comercio		29821	33194	33569	37103	38066	40957	43846	46632	46185	49383	53539
42 Alquiler de Inmuebles		9586	9861	9838	10177	10435	10699	11007	11460	12048	12520	13001
43 Restaurantes y Hoteles		1571	1737	1930	2100	1992	2534	2941	3375	3694	4038	4378
44 Credito Seguro y Fianza		1431	1560	1766	1851	2020	2199	2399	2612	2849	3102	3383
45 Otros Servicios		5183	5417	5621	5776	6078	6413	6757	7100	7476	7836	8170
46 Gobierno General		5444	5696	5940	6000	6410	6815	7377	8165	8540	8643	9487
AGRICULTURA		19753	20347	20314	21358	24170	25639	26179	28125	30171	30056	32168
MINERIA		5154	5246	5663	5671	5684	6318	6522	7081	7178	7410	7825
MANUFACTURAS		42566	45969	47530	47847	52101	56819	61127	66754	70018	75640	80629
INTERMEDIOS		16291	16824	17455	17380	19611	22151	24540	26006	26933	29747	32111
CONSUMO FINAL		24914	27520	28397	28650	30535	31959	33746	37224	39618	41660	44290
BIENES DE CAPITAL		1441	1625	1678	1817	2055	2509	2841	3521	3467	3913	4228
SERVICIOS		67111	73935	76373	78944	82188	88236	95340	101968	105810	108697	118213
TOTAL		134574	145497	149880	154820	164143	177012	189168	203948	213175	222003	238633

Figures obtained from national accounts series 1950–1967 and 1960–1971 of the Bank of Mexico. [illegible] of differences between the two series figures of the latter series prevailed.

ANNEX 1. VALUE OF PRODUCTION (MILLIONS OF 1960 PESOS) PAGE 2

	SECTOR	TIPO	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
1	Agricultura		19451	20777	21762	24092	25589	25966	25626	26743	29830	27482	28361
2	Ganaderia		11912	12021	12805	13478	14210	14862	16206	17407	18432	19501	20262
3	Silvicultura		975	998	1056	1056	1095	1067	1149	1175	1282	1319	1346
4	Pesca		651	638	676	699	636	702	799	736	696	783	799
5	Explotacion de Minas Metalicas		2946	3036	3068	2956	2963	2999	2871	3080	3286	3458	3514
6	Explotacion de Minerales No Metalicos		1166	1388	1444	1661	1661	1804	2066	2161	2214	2341	2389
7a	Petroleo	I	10680	10791	11433	12562	13099	13529	162.J2	16364	17120	18650	19169
7b	Produccion Petroquimica Basica	I	101	213	435	334	652	804	1001	1338	1674	1639	1991
8	Carne Leche y Productos Lacteos		3718	3917	4077	4371	4599	4858	5186	5763	6161	6502	6972
9	Molienda de Trigo Nixtamal , Pan		9237	9286	10107	10571	10566	11432	11284	12803	13231	14061	14733
10	Otros Productos Alimenticios		12887	12928	14409	16884	17618	18888	19886	20619	22061	23248	23682
11	Elaboracion de Bebidas		4376	4638	4988	5787	6296	6724	7228	7566	8380	8048	8083
12	Manufactura de Productos de Tabaco		1357	1321	1405	1484	1632	1737	1719	1859	1988	2078	2119
13	Textiles de Fibras Blandas	I	4924	5252	5360	6579	7073	7969	8923	9496	10588	11616	13281
14	Otras Industrias Textiles	I	1410	1442	1556	1775	1597	1884	1308	1342	1298	1357	1446
15	Calzado, Prendas de Vestir etc.		5578	5819	5982	7481	8170	8278	9716	10515	11373	12521	14150
16	Industria Maderera	I	1617	1829	1983	2520	2580	2586	2704	2702	2931	3063	2929
17	Papel y productos de Papel	I	2433	2671	2935	3298	3767	4028	4313	4625	5189	5655	5734
18	Imprenta y Editorial		1717	1808	1903	2175	2430	2577	2801	2867	3133	3328	3383
19	Cuero y Productos de Cuero	I	1204	1195	1253	1475	1544	1427	1726	1902	1982	2106	2177
20	Productos de Hule		1246	1303	1417	1629	1611	1968	2154	2335	2528	2606	2674
21	Quimicos Basicos	I	1195	1343	1480	1634	1816	2013	2208	2582	3162	3467	3717
22	Fibras Sinteticas, Resinas, Plasticos	I	708	870	969	1286	1516	1889	2166	2507	2974	3766	4636
23	Abonos, Fertilizantes, Insecticidas	I	714	934	1036	1209	1357	1367	1258	1472	1776	1772	2022
24	Jabones y Detergentes	I	1068	1063	1156	1240	1423	1561	1599	1838	2065	2196	2166
25	Farmaceuticos y Medicinas		2022	2238	2384	2493	2788	2990	3228	3507	3857	4193	4489
26	Cosmeticos		807	864	916	1060	1203	1387	1593	1786	1955	2209	2434
27	Otras Industrias Quimicas	I	1264	1420	1539	1729	1940	2156	2336	2648	3058	2972	3231
28	Productos Minerales No Metalicos	I	2467	2804	2910	3375	3706	4316	4836	5453	6024	6333	6836
29	Industrias Metalicas Basicas	I	4966	5106	6048	7044	7811	8836	9186	10172	10994	11874	12976
30	Productos Metalicos	I	2836	2984	3200	3833	4207	4574	4882	5440	5763	6584	6969
31	Maquinaria		1153	992	1149	1842	2241	2552	2847	3212	3212	3697	3630
32	Maquinaria y Aparatos Electricos		2578	2823	3072	4192	4856	5572	5385	6542	6690	7379	7136
33	Equipo y Material de Transporte		1322	1161	1301	1433	1615	1698	1784	1981	2190	2374	2607
34	Vehiculos, Automoviles y Partes		2715	2905	3774	5134	5430	7121	7512	8641	9686	11258	12068
35	Industrias Manufactureras Diversas		1536	1612	1778	2144	2332	2423	2510	2682	2835	3104	3206
36	Construccion e Instalaciones		13868	14774	16921	19778	19485	22287	25186	27040	29590	31010	31351
37	Electricidad		2401	2589	3006	3516	3883	4317	4800	5332	6068	6782	7446
38	Servicios de Esparcimiento		2128	2202	2332	2486	2584	2585	2733	2939	2910	3170	3346
39	Transportes		7367	7479	7993	8500	8972	9379	9807	10657	11354	12149	12841
40	Comunicaciones		927	1017	1091	1160	1298	1422	1520	1672	1848	2057	2316
41	Comercio		56463	58303	63274	71298	75985	81368	85963	93102	99619	106094	108852
42	Alquiler de Inmuebles		13673	14306	14932	15639	16340	17255	18274	19386	20560	21291	22034
43	Restaurantes y Hoteles		4587	4926	5257	5656	6203	6667	7112	7731	8328	8916	9552
44	Credito Seguro y Fianza		3563	3570	3589	4042	4422	4780	5125	5429	6077	6528	7028
45	Otros Servicios		8546	8930	9516	10060	10703	11177	11650	12247	12900	13545	14222
46	Gobierno General		10210	11765	13235	14842	15329	16842	17733	19617	20459	22157	23818
	AGRICULTURA		32989	34435	36299	39295	41610	42627	43772	46081	47040	49085	50888
	MINERIA		6017	6383	6728	9265	9451	9768	10547	11243	11795	12515	12729
	MANUFACTURAS		85435	89282	97712	112763	122458	133471	142576	156506	169926	184308	191839
	INTERMEDIOS		33406	35657	39075	45063	48991	53555	58124	63849	70265	76880	80464
	CONSUMO FINAL		48976	48829	53116	60203	64755	70094	74836	80942	87369	94166	99013
	BIENES DE CAPITAL		5053	4776	5522	7497	8712	9822	9616	11715	12292	13460	13372
	SERVICIOS		123821	129663	141147	157006	165194	177879	189693	205152	219711	233879	242906
	TOTAL		250262	261943	283886	318328	338613	363745	386788	418982	448472	479687	498041

Figures obtained from national accounts series 1950–1967 and 1960–1971 of the Bank of Mexico. In case of differences between the two series figures of the latter series prevailed.

ANNEX 2. VALUE OF PRODUCTION (MILLIONS OF 1970 PESOS)

GRUPO	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
01 Agricultura	38727.3	41670.6	41864.2	43723.1	44497.7	45366.4	46156.0	49687.1	52901.5	50655.3	55534.9	60144.3	57589.7	59089.2	61032.9	64531.6	61144.0	62865.6	59922.2	57423.1
010 Produccion Agricola	37260.7	40039.5	40300.4	42089.9	42872.6	43655.7	43506.6	47868.4	51111.6	48800.4	53721.5	58180.4	55655.5	57105.9	58932.5	62263.2	58878.8	60651.6	57760.6	55388.9
011 Formacion de Capital	971.0	1113.7	1083.8	1106.0	1106.9	1176.9	1173.0	1218.7	1266.6	1300.2	1265.2	1403.1	1329.7	1383.0	1453.7	1571.4	1633.4	1579.0	1554.9	1423.4
012 Servicios Agricolas	475.6	493.7	507.0	536.0	501.8	522.2	480.4	595.5	532.2	548.4	543.6	560.8	595.8	582.1	618.1	670.8	646.8	602.9	559.4	536.0
02 Ganaderia	32004.4	33124.6	34212.7	35812.9	36805.1	38277.3	39589.4	40965.6	42213.6	43109.9	44422.1	45868.0	47265.1	48084.7	48775.5	49397.4	50552.4	48963.2	47753.8	46577.1
020 Produccion Pecuaria	31734.4	32781.6	33892.3	35479.1	36494.6	37964.3	39316.9	40568.3	41869.4	42778.0	44047.3	45500.9	46866.4	47659.2	48364.0	48980.7	50125.9	48540.2	47350.9	46192.6
022 Formacion de Capital	270.0	339.7	324.0	345.3	318.1	330.8	266.6	379.9	330.5	340.5	358.0	368.0	379.9	384.9	395.3	407.8	415.3	399.9	394.5	383.4
03 Silvicultura	2671.9	2813.1	2720.0	2656.9	3019.2	3128.1	3225.0	3363.9	3505.5	3735.3	3816.5	3865.1	3941.4	3699.4	4069.7	4218.1	4036.8	4264.3	4315.3	4151.2
030 Produccion Maderable	1090.5	982.5	1042.5	1131.9	1244.3	1296.8	1343.5	1424.2	1504.9	1677.2	1694.6	1701.4	1733.6	1669.2	1782.8	1892.9	1742.1	1872.6	1916.7	1755.6
031 Productos de Recoleccion y Otros	1581.4	1832.0	1679.4	1726.9	1775.9	1828.1	1881.9	1940.4	1998.9	2058.0	2122.2	2177.4	2222.0	2289.9	2298.4	2302.6	2343.0	2366.1	2591.3	2480.9
04 Caza y Pesca	1183.8	1341.2	1465.5	1637.2	1702.3	1812.4	1966.4	2200.7	2251.6	2631.6	2906.6	3272.2	3356.5	3083.1	3436.0	3499.0	3443.8	3915.0	3883.0	3938.2
040 Caza	2.7	3.0	3.3	3.7	2.7	3.0	3.3	3.9	2.8	6.0	6.6	7.5	7.6	7.0	7.9	7.9	7.9	9.0	8.9	0.0
041 Pesca	1181.1	1338.2	1462.2	1633.5	1699.6	1809.4	1963.1	2196.8	2248.8	2625.6	2902.0	3264.7	3348.9	3076.1	3430.1	3491.1	3435.9	3906.0	3874.1	3929.3
05 Carbon y Derivados	785.6	886.9	966.3	1121.8	1210.6	1290.0	1330.8	1742.5	1695.3	1606.5	1767.6	1691.3	1656.0	1976.2	1979.7	2004.5	1924.9	2025.7	1965.6	1871.9
050 Carbon Mineral y Grafito	232.2	268.4	281.4	332.7	396.4	394.3	431.7	600.4	515.7	560.3	632.2	611.0	574.2	678.0	707.3	733.9	763.2	836.1	796.7	750.9
051 Coque y Derivados de Carbon	533.4	598.3	681.2	780.6	785.2	863.6	899.8	1196.9	1137.2	1203.4	1191.1	1226.6	1232.6	1232.8	1200.6	1196.8	1077.9	1094.6	1079.1	1037.4
06 Petroleo Crudo y Gas Natural	7119.3	7076.6	7361.4	7617.7	9219.5	10635.6	11561.7	13484.0	16808.7	20489.3	27161.5	32019.8	36830.9	35743.7	36366.8	35417.5	32996.3	34357.4	34058.4	34248.7
060 Petroleo Crudo y Gas Natural	7119.3	7076.6	7361.4	7617.7	9219.5	10656.9	11561.7	13484.0	16808.7	20489.3	27161.5	32019.8	36830.9	35743.7	36366.8	35417.5	32996.3	34357.4	34058.4	34248.7
07 Mineral de Hierro	719.0	775.6	840.5	857.0	918.0	927.5	1003.0	967.2	1169.1	1328.6	1399.9	1579.1	1462.5	1454.5	1509.1	1422.3	1325.7	1353.7	1521.7	1469.9
070 Mineral de Hierro	719.0	775.6	840.5	857.0	894.4	927.5	1003.0	967.2	1169.1	1328.6	1399.9	1579.1	1462.5	1454.5	1509.1	1422.3	1325.7	1353.7	1521.7	1469.9
08 Minerales Metalicos No Ferrosos	6481.4	6112.0	6455.5	6533.3	6889.7	6312.9	7025.8	7958.2	7038.8	7414.7	8678.6	9606.8	10015.1	11160.7	11282.2	11646.7	12063.2	13017.9	13295.8	12881.7
080 Minerales Metalicos No Ferrosos	6481.4	6112.0	6455.5	6533.3	6889.7	6312.9	7025.8	7958.2	7038.8	7414.7	8678.6	9606.8	10015.1	11160.7	11282.2	11646.7	12063.2	13017.9	13295.8	12881.7
09 Caseras, Arena, Grava y Arcilla	1532.8	1615.6	1634.8	2051.5	2257.8	2416.6	2562.8	2570.5	2788.2	2982.6	3240.3	3564.4	3703.7	3288.9	3428.3	3638.9	3434.8	3651.9	3684.3	3675.4
090 Piedra Caliza	276.6	288.2	326.9	376.2	406.3	442.6	455.8	479.6	483.8	524.7	567.0	616.1	643.0	577.8	627.1	663.8	599.1	750.7	743.9	765.5
091 Yeso	54.9	73.8	71.1	66.0	72.2	67.3	62.7	62.0	64.7	68.4	67.1	90.3	86.4	93.6	89.7	104.6	110.2	112.3	112.3	122.4
092 Arena y Grava	891.0	913.3	1057.6	1213.5	1316.7	1443.4	1542.3	1519.2	1679.5	1801.6	1945.9	2158.1	2263.4	1947.9	1998.5	2072.4	1909.0	1967.3	2006.2	2113.3
093 Arcilla y Caolin	240.7	259.5	296.3	341.8	319.4	343.5	383.4	360.8	421.2	463.2	489.6	526.8	553.7	496.9	537.1	611.5	603.7	660.0	678.1	705.0
094 Silice	69.6	80.2	84.1	84.6	140.5	122.1	99.0	129.3	119.2	114.9	151.3	167.8	161.1	178.4	161.1	169.7	174.6	191.0	168.2	212.9
10 Otros Minerales No Metalicos	1631.1	1635.7	1361.1	1716.4	2119.0	2014.9	2028.7	1659.7	1778.0	1863.3	1875.6	1915.0	1686.0	1581.1	1734.9	1818.9	1883.1	2003.1	2031.3	1877.5
100 Fluorita	392.3	473.5	418.2	435.6	448.0	436.6	359.7	284.6	364.8	360.7	367.6	370.9	253.3	223.5	251.4	279.4	303.6	290.0	303.3	312.4
101 Azufre y Otros Minerales No Meta	891.2	775.3	693.1	978.6	1346.6	1318.3	1244.1	1106.9	1061.4	1132.7	1124.7	1136.2	1039.2	968.4	1078.6	1228.2	1173.1	1323.6	1309.1	1162.9
102 Sal	247.6	286.2	299.3	303.6	326.6	262.2	271.1	268.2	324.1	360.6	383.6	404.1	393.4	386.7	404.1	414.9	409.9	402.6	427.5	404.1
11 Carnes y Lacteos	27449.0	29096.9	30578.2	32636.9	33981.9	35648.5	36369.9	37934.5	38538.4	39471.7	40377.5	42961.6	46303.5	45645.9	46797.5	47443.5	48574.1	46565.2	45666.9	46030.3
110 Carnes	20642.7	21427.1	22006.1	23674.9	24172.6	25493.7	25782.7	26567.2	26402.0	27166.8	27960.2	29878.8	31563.7	32338.4	33065.1	33288.7	34408.7	33065.1	32562.0	31919.1
111 Leche, Crema, Mantequilla y Ques	6562.7	7391.4	8283.0	4737.6	9475.2	9656.7	10178.3	10903.7	11644.1	11749.0	11806.0	12410.2	13059.6	12445.6	13024.2	13472.9	13579.2	12941.5	12567.3	13720.9
112 Otros Productos Lacteos	263.6	286.8	313.4	326.9	339.3	385.5	419.7	440.8	466.6	557.4	609.9	632.5	680.5	661.9	684.2	686.7	434.3	387.9	353.7	372.0
12 Preparacion de Frutas y Legumbre	2360.8	2193.2	2495.4	2607.0	2984.1	3092.6	3125.7	3210.7	3280.3	3926.0	3904.6	3549.4	4330.4	4127.3	3697.0	4373.3	4846.7	6072.3	4752.1	5841.5
120 Frutas y Legumbres Envasadas y S	1778.5	1574.0	1835.4	2102.2	2230.2	2288.9	2228.7	2261.8	2338.7	2947.4	2874.1	2486.1	3101.1	2884.2	2787.8	3127.0	3368.9	3698.0	3448.9	4293.8
121 Salsas y Condimentos	582.3	619.6	660.3	704.6	752.3	804.2	900.2	930.6	921.8	1078.4	1030.1	1104.3	1254.6	1278.3	1132.1	1272.2	1306.2	1385.5	1317.5	1551.3
13 Molienda de Trigo	10263.0	10648.0	11740.9	12664.5	13198.2	14009.0	14193.7	14481.1	14963.5	15733.2	16687.6	17839.1	18606.7	18756.9	19407.7	18967.2	17572.1	18156.2	18573.3	19107.3
130 Harina de Trigo	2783.1	3078.1	3275.7	3417.6	3459.4	3788.3	3618.0	3732.1	3651.8	4183.0	4517.0	5068.0	6253.2	5276.8	5439.4	5221.6	4857.0	4923.5	5167.4	5402.3
131 Pan y Otros Productos de Harina	7479.9	7771.6	8467.2	9245.2	9731.3	10247.5	10584.1	10748.6	11107.7	11549.0	12169.6	12802.6	13368.8	13520.6	13995.3	13751.9	12887.8	13228.6	13423.3	13739.7
14 Molienda de Nixtamal	11730.9	11719.2	11298.9	11824.7	12094.6	12729.0	13678.2	14827.9	15414.4	16200.4	17138.6	17978.6	19041.3	19983.9	20600.9	21217.9	21012.2	21372.1	21817.7	22451.9
140 Harina de Maiz	430.1	417.3	436.2	578.9	668.0	661.6	1012.9	1068.7	1151.9	1375.7	1598.6	1593.8	1755.3	2073.4	2254.1	2305.2	2095.8	2054.2	2228.9	2409.1
141 Nixtamal y Tortillas de Maiz	11304.8	11304.8	10863.7	11248.1	11429.0	11869.8	12661.2	13757.7	14268.4	14820.3	15543.8	16363.2	17284.7	17908.5	18341.7	18916.8	18916.8	19321.0	19585.2	20036.0
15 Beneficio y Molienda de Cafe	3853.7	4119.6	4431.8	4451.0	4747.8	4732.3	5210.2	4774.7	5048.8	5029.1	5422.2	5845.1	6028.4	6322.2	6392.7	6143.3	6376.5	6484.9	6786.6	6929.6
150 Beneficio de Cafe	2173.2	2276.3	2447.0	2499.2	2599.1	2609.9	2827.3	2636.3	2673.1	2779.5	2986.0	2975.5	3140.0	3417.0	3382.2	3268.6	3454.6	3587.3	3782.2	3849.9
151 Cafe; Cafe Soluble y Te	1680.5	1841.6	1988.4	1951.1	2149.4	1920.8	2384.6	2138.9	2468.7	2250.2	2537.6	2910.6	2888.9	2890.2	3045.1	2905.5	2905.5	2859.6	2948.6	3037.5
16 Azucar	4245.6	4593.7	4647.0	5009.6	5111.7	4920.7	4907.9	4912.2	5557.5	5842.4	5162.6	5171.7	5250.4	6221.0	6282.9	6568.9	7398.1	7851.0	6871.5	6660.5
160 Azucar y Subproductos	4128.1	4478.8	4423.2	4881.2	4984.3	4778.0	4749.1	4736.6	5368.1	5450.6	4936.9	4[illegible]4.5	4983.4	5926.7	5941.5	6213.2	7131.8	7396.5	6618.2	6455.2

ANNEX 2. VALUE OF PRODUCTION (MILLIONS OF 1970 PESOS)

GRUPO	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
161 Alcohol Etilico	119.5	120.0	125.7	129.9	130.0	141.0	159.9	172.3	186.8	194.8	223.9	247.9	287.3	316.9	355.8	382.1	233.1	202.2	228.6	169.0
17 Aceites y Grasas Comestibles	5975.3	6286.0	7032.9	6979.2	6686.4	7331.7	7989.0	7869.5	7803.7	8138.4	9512.7	10311.7	11025.2	11129.8	11890.8	12604.3	10616.1	11566.4	11729.1	11966.9
170 Aceites y Grasas Vegetales Comes	5975.3	6286.0	7032.9	6979.2	6686.4	7331.7	7989.0	7869.5	7803.7	8138.4	9512.7	10311.7	11025.2	11129.8	11890.8	12604.3	10616.1	11566.4	11729.1	11966.9
18 Alimentos Para Animales	4000.2	4200.2	4176.2	4940.2	5312.3	5872.3	6364.3	6908.3	7196.4	7372.4	8100.4	8916.5	8707.9	8335.3	7954.6	7565.8	7015.0	5937.6	5921.4	6310.2
180 Alimentos Para Animales	4000.2	4200.2	4176.2	4940.2	5312.3	5872.3	6364.3	6908.3	7196.4	7372.4	8100.4	8916.5	8707.9	8335.3	7954.6	7565.8	7015.0	5937.6	5921.4	6310.2
19 Otros Productos Alimenticios	7287.0	7464.6	7972.0	8591.4	9480.4	10303.8	10690.0	10617.2	11600.9	12730.4	14085.8	14705.5	15466.2	13902.7	14001.3	15436.0	16184.6	15747.9	16536.7	16460.5
190 Dulces, Bombones y Confituras	2018.5	1887.3	1947.9	2073.0	2323.3	2648.3	2623.1	2180.0	2464.6	2789.6	2956.1	2961.7	3129.4	2730.5	2568.7	2887.1	3147.2	2981.7	3102.8	3664.3
191 Prepa. y Envase de Pescado y Mar	1711.8	1836.5	2066.1	2132.9	2256.2	2283.5	2430.8	2500.9	2557.4	2851.9	3506.8	3766.2	3693.4	3602.3	4119.3	4465.8	4536.5	4431.3	4694.2	5030.8
192 Arroz y Otros Produc Agricos de M	1887.7	2051.9	2108.6	2310.5	2665.4	2901.3	3150.6	2922.2	3107.2	2969.3	3127.9	3315.8	3625.4	3228.0	3131.0	3388.8	3678.3	3565.8	3628.4	3800.4
193 Concentrados y Jarabes	959.4	897.0	963.4	1099.5	1136.9	1310.5	1230.9	1469.0	1758.6	2186.3	2302.6	2380.1	2613.4	2433.8	2367.9	2671.0	2737.7	2696.3	2859.5	3053.2
194 Otros Productos Alimenticios	709.6	782.0	869.3	974.3	1102.7	1263.1	1353.2	1524.2	1713.7	2057.1	2194.6	2300.1	2330.9	2067.2	1956.6	2218.9	2302.3	2221.1	2594.2	3046.4
20 Bebidas Alcoholicas	3185.3	3236.3	3331.6	3720.4	3545.2	4523.1	5204.8	5061.4	5674.3	6306.9	6972.6	7077.2	7593.2	6443.6	6283.5	6067.3	7356.1	7869.9	7404.8	8492.7
200 Aguardientes a Base de Agaves,	801.5	891.3	826.8	736.0	920.3	1051.4	1287.8	1273.4	1261.9	1366.6	1361.8	1243.4	1368.1	1098.9	1042.2	1362.7	1277.2	1398.2	1342.1	1646.2
201 Vinos y Licores	2216.1	2213.9	2229.4	2539.7	2200.6	3067.0	3499.2	3346.3	3893.7	4516.4	5181.2	5398.9	5766.7	5279.7	5178.0	5246.8	5673.5	5849.6	5647.6	6393.7
202 Pulque y Otras Bebidas Fermentad	367.7	432.8	475.1	444.9	424.7	386.6	419.9	442.3	419.2	424.3	449.8	422.6	396.8	395.0	414.4	371.7	355.3	368.1	384.9	387.7
21 Cerveza y Malta	4936.6	4970.6	5155.6	6039.8	7062.1	7042.3	7067.0	7911.6	8336.2	9501.7	10222.7	10938.3	10841.6	8879.1	9026.6	9701.3	10028.5	10764.5	11101.8	12845.5
210 Fabricacion de Malta	576.6	530.6	523.6	623.9	623.3	740.9	683.3	702.9	745.0	822.2	904.7	950.8	900.2	783.5	824.2	919.2	932.7	1037.7	1065.8	1077.5
211 Cerveza	4361.9	4439.5	4632.3	5417.5	6320.4	6301.4	6384.0	7175.3	7589.7	8680.2	9317.0	9979.5	9727.0	7900.9	8208.3	8795.3	9112.0	9754.9	10071.7	11653.1
22 Refrescos y Aguas Gaseosas	4797.4	4140.2	4547.9	5066.1	4859.8	5977.6	6080.4	5747.3	6985.0	8433.8	8856.0	9157.1	9555.6	9059.7	8794.0	9449.4	9077.4	8820.6	9449.4	11178.3
220 Refrescos y Aguas Gaseosas	4797.4	4140.2	4547.9	5066.1	4859.8	5977.6	6080.4	5747.3	6985.0	8424.2	8856.0	9157.1	9555.6	9059.7	8794.0	9449.4	9077.4	8820.6	9449.4	11178.3
23 Tabaco	3101.1	3091.8	3234.4	2908.8	3060.8	3135.2	3250.0	3370.9	3568.0	3727.6	3854.7	3812.3	3947.2	3760.5	3554.0	3769.9	3658.1	3519.3	3492.3	3669.6
230 Beneficio de Tabaco	362.4	326.7	340.8	355.2	400.7	267.5	267.5	278.4	373.9	386.5	387.3	363.7	424.9	292.8	283.1	291.6	423.3	258.1	377.8	306.0
231 Cigarros y Puros	2748.7	2765.2	2894.4	2556.3	2658.0	2869.6	2982.9	3092.3	3218.0	3358.9	3466.1	3448.1	3490.4	3140.3	3356.2	3577.0	3171.5	3303.2	3081.4	3434.9
24 Hilados y Tejidos de Fibras Blan	13621.3	16032.3	17190.1	16899.7	17993.7	17053.9	17734.9	19342.2	20268.6	22025.6	22107.4	22859.0	20427.2	20117.7	20803.0	21223.1	19687.1	20029.3	20405.1	20095.6
240 Despepite y Empaque de Algodon	3082.3	3336.1	3526.2	3359.7	4330.6	2379.5	2022.0	2998.0	3068.9	3119.3	3211.8	3078.9	1920.6	2116.5	2829.6	1988.1	1464.6	1997.7	1948.3	1149.6
241 Prepara de Fibras Blandas Para h	1868.0	2163.1	2060.4	1703.6	1741.0	1780.2	1686.7	1630.8	1780.2	1995.0	2084.7	2182.7	2063.8	1962.6	1978.3	2106.5	2036.7	2207.7	2259.8	2549.6
242 Hilos e Hilados Para Coser y Tej	666.1	653.3	765.9	819.7	901.2	1230.1	1463.9	1687.5	1811.0	1931.5	1893.0	2156.2	1857.1	1929.0	1987.7	2118.3	2052.1	2002.6	1843.9	1993.4
243 Hilados y Tejidos de Fibras Blan	8104.9	9879.9	10636.3	10620.0	11022.7	11663.0	12582.6	13024.6	13618.2	14977.9	14913.0	15524.4	14 19.1	14227.0	14092.8	15211.3	14301.6	14033.1	14525.3	14778.8
25 Hilados y Tejidos de Fibras Dura	1754.7	1656.4	1735.4	1723.1	1812.6	1656.2	1582.7	1235.3	1009.0	1319.5	1356.1	1360.9	1392.1	1295.7	1147.6	1026.1	1186.4	1125.9	1089.2	1101.4
250 Henequen	1579.9	1560.9	1608.3	1602.0	1677.9	1530.9	1453.5	1104.4	872.1	1145.4	1164.4	1202.8	1199.3	1068.4	957.1	829.0	922.2	836.0	823.2	823.2
251 Otras Fibras Duras	174.8	145.3	126.9	120.4	134.2	127.6	129.5	130.8	136.8	173.4	193.7	181.3	193.7	208.7	187.7	194.3	258.0	277.7	255.8	267.7
26 Otras Industrias Textiles	2469.0	2656.3	2939.5	3330.3	3674.2	3845.5	4221.3	4567.3	5012.8	6090.6	6501.3	6871.8	6442.8	6143.7	6215.2	6663.8	6442.8	6273.7	6533.8	7105.9
260 Telas Impermeabilizadas e Impreg	341.1	326.1	328.1	328.8	310.1	308.0	294.7	317.9	351.3	455.7	519.6	536.1	436.5	343.9	357.4	394.4	325.7	319.0	345.5	347.5
261 Alfombras telas afelpadas y fiel	595.8	649.4	771.8	945.5	1038.5	1177.3	1378.1	1550.3	1665.9	2143.7	2215.8	2366.5	2242.4	2182.5	2074.0	2231.3	2093.9	2120.5	2219.0	2266.7
262 Encajes, Cintas y Tejidos Angost	669.5	736.5	810.1	891.1	960.7	1014.3	1165.0	1165.6	1231.2	1377.8	1468.3	1556.8	1506.2	1479.4	1641.6	1736.8	1656.5	1579.1	1596.5	1802.3
263 Algodon Absorbente, Vendas y Sim	323.9	339.4	356.6	372.8	390.6	409.4	412.6	585.5	629.0	734.0	827.2	858.7	841.3	867.0	818.6	969.5	1105.2	914.1	91 4	1120.1
264 Otros Textiles	668.7	807.9	875.5	792.6	890.6	936.9	950.3	967.1	1136.8	1379.4	1450.9	1551.1	1466.9	1311.7	1362.4	1478.5	1458.2	1467.2	1583.0	1754.2
27 Prendas de Vestir	12362.9	13042.9	14464.6	15676.2	16441.3	15564.9	16132.2	16360.8	16663.0	16462.6	18100.7	20113.0	19005.2	18470.4	18413.1	18451.3	17362.5	16483.9	16598.5	17037.6
270 Articulos de Punto	3931.6	4226.5	5063.9	5506.2	5527.6	5634.0	5810.9	6286.6	6561.5	7222.3	7242.0	7466.6	6879.9	7481.0	7408.6	7883.6	7840.3	7486.2	7578.5	8364.5
271 Ropa Interior y Exterior	6226.6	6597.0	9164.7	9913.3	9674.7	9691.2	9062.4	9647.5	10036.7	10974.6	11575.1	12315.9	11760.3	10764.9	10778.4	10614.4	9642.1	8936.0	8901.3	8785.6
272 Otras Prendas de Vestir	204.5	214.1	234.4	251.1	240.9	240.7	235.2	250.7	262.6	276.1	280.8	286.7	280.0	306.2	303.8	303.6	308.5	313.8	309.9	311.0
28 Cuero y Calzado	6816.5	7164.6	7443.6	7879.9	8246.0	8622.9	8816.1	9079.6	10197.5	11199.5	11390.4	12540.8	12461.1	10718.3	11367.6	11732.1	10900.6	9499.6	9280.4	9522.4
280 Curtido y Acabado de Cuero y Pie	1469.6	1536.7	1528.4	1669.5	1745.9	1832.6	1779.7	1801.7	2057.4	2250.0	2006.0	2184.5	2078.2	2048.1	2270.8	2310.9	1819.4	1855.6	1813.4	1806.4
281 Calzado y Otros Articulos de Cue	4628.2	5091.6	5328.1	5593.6	5849.4	6100.3	6182.4	6528.4	7468.1	8233.5	8643.7	9594.5	9511.8	7813.9	8099.2	8470.8	8272.0	6758.4	6560.6	6768.0
282 Otros Calzados de Cuero o Tela	520.7	556.1	584.7	619.6	652.4	687.3	853.0	850.4	674.3	718.0	737.8	771.0	820.5	774.7	884.9	820.5	837.4	787.3	787.3	872.1
29 Aserraderos, Triplay y Tableros	3395.0	3279.6	3534.2	3809.2	4162.3	4491.6	4844.4	4827.7	5160.8	5747.7	6060.6	5987.1	6029.7	5616.8	6189.8	6482.6	5883.6	6384.7	6108.9	5840.9
290 Aserraderos	2687.4	2484.3	2679.8	2958.6	3222.2	3376.4	3445.2	3582.3	3851.0	4316.0	4446.0	4236.0	4184.9	3991.8	4282.7	4533.9	4084.9	4422.7	4258.3	3960.6
291 Triplay, Tableros Aglutina y Fib	707.6	815.9	855.6	850.6	939.0	1114.5	1199.4	1246.8	1328.9	1430.1	1644.5	1845.1	2037.5	2012.8	2083.5	2186.2	1863.6	2103.3	2003.0	2106.8
30 Otros Productos de Madera y Corc	4333.9	4251.6	4619.9	5001.3	5504.1	5495.4	5941.8	6728.2	7220.3	8052.4	8557.8	8719.8	8425.1	7378.3	7483.8	7891.7	7757.7	7749.0	7593.0	7783.7
300 Muebles, Incluso Colchones	3302.3	3157.0	3497.1	3787.7	4233.6	4193.9	4557.2	5115.3	5547.9	6340.4	6872.1	6975.2	6604.1	5731.3	5738.2	6028.8	6068.1	5961.2	5813.8	6008.2

ANNEX 2. VALUE OF PRODUCTION (MILLIONS OF 1970 PESOS)

GRUPO	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
301 Puertas, Ventanas y Similares	256.7	244.5	260.0	270.3	296.2	308.4	341.7	379.8	427.1	458.4	545.1	544.5	592.0	532.5	551.8	459.0	469.3	500.4	470.9	473.7
302 Otros Produc de Madera, Palma y	772.9	850.2	880.2	943.7	973.9	994.7	1043.4	1229.7	1244.4	1252.1	1249.0	1220.3	1207.8	1076.6	1115.4	1109.1	1184.1	1221.5	1229.0	1237.8
31 Papel y Carton	7769.0	7574.8	8390.5	9579.2	10791.1	10107.5	11459.3	11917.8	13096.5	14403.7	15934.2	16268.8	16803.5	16252.9	17240.8	18451.8	18005.7	18659.0	19137.0	20363.9
310 Pastas de Celulosa y Papel	4451.8	4386.0	4781.2	5239.8	6054.4	5733.9	6455.1	6918.1	7648.2	8316.0	9032.7	9430.1	9945.0	9681.9	10936.8	11679.3	11742.5	12167.0	12809.7	13124.5
311 Carton, Cartoncillo y Carton Imp	555.4	619.3	693.7	863.1	825.3	772.0	830.9	887.0	936.8	978.1	1100.2	1027.6	1001.2	958.3	1054.0	1158.6	1021.0	1050.7	1093.6	1258.2
312 Envases y Otros Productos	2781.8	2571.2	2919.2	3486.4	3913.5	3604.1	4170.3	4109.6	4512.8	5109.3	5802.6	5808.3	5869.1	5448.6	5309.3	5686.5	5326.7	5524.0	5529.8	6057.9
32 Imprentas y Editoriales	5430.9	5360.3	5903.4	5832.8	5838.2	6544.2	7217.7	7293.7	7429.5	8233.2	9254.3	9084.6	9682.8	8615.7	8930.4	9874.3	9393.1	9374.6	9911.3	10642.4
320 Libros, Periodicos y Revistas	2650.1	2607.7	2795.9	2711.1	2522.9	2966.7	3158.9	2907.2	2867.4	3174.8	3524.6	3965.2	3937.0	3168.6	3334.3	3937.0	3693.8	3614.1	3693.8	4039.2
321 Imprenta y Encuadernacion	2780.8	2750.2	3108.2	3122.8	3317.5	3556.6	4062.7	4385.3	4560.5	5081.1	5728.4	5911.8	5831.6	5528.0	5842.5	5814.4	5808.2	5900.3	6278.4	6610.6
33 Petroleo y Derivados	12259.2	12908.9	14000.0	15434.3	16451.8	17101.6	18523.7	19678.0	21171.6	23979.0	26921.2	29559.5	28482.6	27944.2	29238.4	30340.2	30205.6	31228.6	30932.5	32224.7
330 Refinacion de Petroleo Crudo y D	11427.8	12044.9	13062.0	14410.5	15347.5	15967.5	17416.0	18250.2	19827.2	22489.9	25324.0	27881.7	26970.1	26742.1	27881.7	29068.8	28565.5	29451.8	29122.6	30160.9
331 Regeneracion de Aceites y Asfalt	831.4	868.0	939.5	1021.0	1106.6	1113.2	1106.3	1425.0	1342.7	1489.0	1591.3	1706.9	1573.8	1355.8	1491.0	1713.8	1696.3	1799.8	1806.1	1908.7
34 Petroquimica Basica	1520.5	1747.1	2102.9	2317.2	2908.7	3139.8	3469.8	3434.8	3903.1	4518.9	4946.2	5871.1	6721.9	8413.5	8398.8	8736.0	10055.6	11786.8	12538.8	14868.2
340 Productos Petroquimicos Basicos	1520.5	1747.1	2102.9	2317.2	2908.7	3139.8	3469.8	3434.8	3903.1	4518.9	4946.2	5871.1	6721.9	8413.5	8398.8	8736.0	10055.6	11786.8	12538.8	14868.2
35 Quimica Basica	2428.2	2530.5	2964.8	3321.5	3692.7	3578.8	4029.9	4711.7	5041.8	5274.8	5660.3	6045.2	6398.2	6849.0	7347.1	7696.7	7494.3	7907.5	8258.4	8620.7
350 Colorantes y Pigmentos	666.8	710.9	884.8	1021.3	1165.7	1062.7	1262.8	1662.0	1691.1	1883.9	1930.8	1892.2	1746.5	1672.1	1795.7	1878.7	1845.9	1932.8	2073.7	2232.0
351 Gases Industriales	555.3	621.9	785.2	889.8	969.8	1047.3	1152.2	1213.9	1367.7	1523.7	1704.8	1791.7	1848.0	1845.1	1730.3	1834.9	1840.0	1806.9	1848.8	1894.5
352 Productos Quimicos Basicos	1202.1	1197.3	1294.7	1410.1	1557.9	1469.0	1596.2	1836.8	1972.9	1868.9	2024.3	2303.7	2653.9	3188.3	3436.3	3618.9	3668.9	3852.3	4000.1	4141.8
36 Abonos y Fertilizantes	1882.4	2027.3	2492.3	2631.8	2731.4	2810.4	3130.4	3341.3	3069.0	3354.4	3566.0	4292.4	5863.1	6228.3	6640.7	6210.9	6820.0	6849.2	6544.4	7154.0
360 Abonos y Fertilizantes	1882.4	2027.3	2492.3	2631.8	2731.4	2810.4	3130.4	3341.3	3069.0	3354.4	3566.0	4292.4	5863.1	6228.3	6640.7	6210.9	6820.0	6849.2	6544.4	7154.0
37 Resinas Sinteticas y Fibras Arti	4028.7	4814.3	5942.3	7138.9	7686.8	8420.0	9348.6	10253.0	11050.7	12566.5	13580.7	14314.1	14151.1	15665.8	17404.8	18659.9	18279.7	20887.2	21847.7	21620.6
370 Resinas Sinteticas	1333.3	1484.0	1786.6	1862.6	2065.3	2165.3	2553.3	2637.3	3073.3	3780.6	4499.9	4931.9	5195.9	5939.9	6871.3	7564.3	7415.8	8540.8	8689.3	8743.3
371 Fibras Celulosicas y Sinteticas	2695.4	3331.5	4169.8	5274.9	5619.9	6256.0	6792.4	7617.2	7975.7	8776.2	9080.8	9253.3	8663.1	9253.3	9979.9	10188.7	9981.6	11269.3	11950.3	11832.3
38 Productos Farmaceuticos	6392.6	7255.6	8617.2	9972.5	10400.8	11609.0	12510.3	12849.1	13258.3	14364.2	14869.2	16118.2	16358.1	17248.3	17283.1	17724.1	16924.9	16778.2	16066.5	16809.5
380 Productos Medicinales	6392.6	7255.6	8617.2	9972.5	10400.8	11609.0	12510.3	12849.1	13258.3	14364.2	14869.2	16118.2	16358.1	17248.3	17283.1	17724.1	16924.9	16778.2	16066.5	16809.5
39 Jabones, Detergentes y Cosmetico	4776.6	4862.6	5354.8	6903.9	6391.1	6873.5	7403.7	7910.0	8473.7	9672.6	10393.9	11849.0	12658.7	12347.9	12886.8	13002.7	13085.9	14062.9	13616.0	16411.9
390 Jabones, Detergentes y Similares	2912.1	2965.5	3269.1	3459.6	3782.8	4126.4	4467.2	4986.4	5177.7	5699.0	6196.9	6810.4	7382.0	7337.2	7417.7	6965.4	7405.4	7832.9	7430.1	8618.3
391 Perfumes Cosmeticos y Similares	1864.6	1998.7	2144.2	2446.2	2608.4	2746.4	2936.5	2923.5	3296.4	3971.4	4197.0	4960.8	5237.8	5002.8	5393.1	6791.8	6561.0	6056.3	6976.5	7298.6
40 Otros Productos Quimicos	4539.4	5275.0	5910.8	6665.4	6128.6	6703.9	7399.8	7983.7	8907.6	9933.0	10670.6	11748.4	11289.5	10414.5	11534.9	12346.9	12015.1	12164.5	12249.9	13050.2
400 Insecticidas y Plaguicidas	675.3	993.4	1113.6	1394.5	900.9	1118.3	1061.6	1128.4	1181.8	1355.3	1266.2	1486.2	1296.3	1323.2	1347.2	1491.6	1340.9	1252.3	1157.3	1335.6
401 Pinturas, Barnices y Lacas	1250.6	1305.6	1456.9	1696.3	1787.1	1844.6	1963.6	2074.7	2339.9	2702.5	2966.4	3236.4	3141.4	2545.2	2781.7	3274.9	3399.5	3384.7	3402.5	3699.5
402 Impermeabilizantes Adhesivos y S	670.6	704.1	806.7	855.4	858.5	761.8	940.2	1025.3	1258.0	1374.1	1686.6	1875.5	1961.7	1835.0	2059.3	2140.2	1948.0	2140.2	2126.8	2177.3
403 Tintas y Pulimentos	331.1	369.6	402.9	420.6	416.5	458.9	551.6	645.3	726.1	814.8	914.5	987.7	959.3	872.4	939.2	1000.5	963.9	973.0	1011.4	1082.6
404 Otros Productos Quimicos	1711.8	1901.8	2129.5	2314.4	2367.4	2621.5	2880.4	3122.3	3403.1	3885.5	3834.4	4166.5	3907.3	3782.3	4371.3	4421.1	4363.6	4413.4	4547.6	4789.2
41 Productos de Hule	3857.4	4312.6	4682.9	5184.3	5627.9	6076.4	6754.3	6754.3	8285.7	8532.6	9901.9	9852.4	10723.6	9753.4	10713.9	11723.9	10159.0	10844.6	11169.4	11704.1
410 Llantas y Camaras	2527.1	2868.3	3136.7	3447.0	3671.9	4083.8	4652.4	4473.0	5645.5	5632.9	6527.5	6227.2	7088.9	6410.9	7219.4	7963.1	6997.2	7010.5	7343.4	7678.3
411 Vulcanizacion de Llantas y Camar	412.0	448.7	496.5	565.3	653.4	758.1	814.9	881.3	1023.8	1150.7	1385.6	1506.9	1632.2	1679.3	1727.8	1790.1	1827.5	1851.1	1903.8	1974.4
412 Otros Produc de Hule, Incluso Ca	918.3	995.4	1047.8	1171.8	1304.0	1235.1	1256.8	1400.4	1616.3	1750.3	1987.2	2068.7	1981.2	1805.7	1736.8	1939.5	1697.7	1709.9	1854.1	1869.2
42 Articulos de Plastico	3343.1	3543.7	4235.7	4503.2	4660.3	4767.3	5482.7	5977.5	6872.8	7354.8	8672.0	10078.9	9912.1	8483.9	9331.1	10241.6	10111.6	10078.9	10493.1	11447.0
420 Materiales y Articulos de Plasti	3343.1	3543.7	4235.7	4503.2	4660.3	4767.3	5482.7	5977.5	6872.8	7354.8	8672.0	10168.9	9253.0	8958.3	9651.9	10484.4	10302.3	10788.0	11178.2	12557.1
43 Vidrio y Productos de Vidrio	2190.7	2337.5	2563.1	2786.6	3001.3	3561.8	3640.3	4149.2	4574.2	4819.5	5400.1	4903.3	4411.9	4357.9	4519.9	4854.7	4478.7	5049.1	5016.7	5513.5
430 Vidrio Plano, Iiso y labrado	369.8	440.0	432.8	572.4	493.3	662.2	707.7	725.4	772.1	711.3	804.2	905.5	906.2	619.2	647.3	662.6	619.2	739.0	- 749.5	901.5
431 Envases y Ampolletas de Vidrio	1039.2	1037.1	1131.7	1256.4	1453.6	1668.5	1968.0	2227.0	2428.6	2594.9	2973.2	2759.1	2500.4	2502.6	2741.2	2925.6	2744.2	2821.5	2828.3	3041.5
432 Fibras de Vidrio y Similares	235.8	285.6	329.2	379.4	461.9	433.2	445.9	423.5	527.5	588.1	642.6	748.6	577.9	460.1	678.9	722.9	491.6	520.5	614.3	589.9
433 Otros Articulos de Vidrio y Cris	555.9	574.8	699.9	577.6	593.1	697.0	697.7	772.7	847.2	968.9	978.9	690.2	858.8	721.5	670.8	700.9	697.9	834.9	878.9	984.9
44 Cemento	1937.5	1985.9	2321.1	2629.2	2858.8	3132.9	3398.4	3568.9	3793.8	4095.9	4423.3	4567.8	5206.2	4662.2	5095.7	5808.8	5533.6	6374.0	6369.8	6546.5
440 Cemento Hidraulico	1937.5	1985.9	2321.1	2629.2	2858.8	3132.9	3398.4	3568.9	3793.8	4095.9	4423.3	4567.8	5206.2	4662.2	5095.7	5808.8	5533.6	6374.0	6369.8	6546.5
48 Productos a Base de Minera No Me	6779.8	6847.6	7430.7	8149.3	8678.1	9105.3	9936.8	8393.4	9506.3	10786.7	11715.5	12536.6	11936.1	10655.7	11062.9	11998.7	10768.5	11492.9	11178.8	11563.2
480 Alfareria, loza y Porcelana	1536.5	1562.6	1611.6	1654.8	1731.6	1782.3	1949.8	1974.4	2327.8	2568.0	2857.9	2937.9	2975.1	3040.8	3196.1	3300.9	3228.8	3369.5	3426.8	3569.5
481 Ladrillos y Tabiques	1797.1	1782.7	1949.9	2242.8	2400.9	2620.2	2566.1	2280.5	2329.0	2652.0	3073.0	3171.4	2962.5	2612.1	2934.8	3109.9	2914.9	3097.6	2781.1	2925.5

ANNEX 2. VALUE OF PRODUCTION (MILLIONS OF 1970 PESOS)

GRUPO	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
452 Cal y Yeso	836.1	880.4	979.1	1058.5	1167.2	1228.2	1291.8	1229.9	1322.7	1436.4	1564.3	1669.2	1678.5	1496.5	1570.6	1713.0	1634.7	1739.5	1681.7	1731.7
453 Productos de Asbesto	761.3	835.9	916.1	1006.0	1106.2	1215.0	1365.8	1169.2	1406.9	1667.2	1656.1	1840.4	1769.3	1257.9	1837.1	2010.9	1269.3	1305.8	1300.9	1559.1
454 Mosaicos y Marmoles	1646.8	1767.8	1974.5	2185.3	2274.0	2265.5	2157.5	1717.5	2118.7	2286.8	2562.4	2928.9	2557.3	1847.5	1634.8	1903.9	1545.1	1706.8	1616.9	1509.3
46 Industrias Basicas de Hierro y A	16466.0	16450.5	17531.2	19193.3	21358.5	21590.5	21930.8	23755.8	26998.8	30730.9	31550.8	32875.8	302[illegible].5	26774.2	32055.5	31929.2	29878.5	31678.8	33254.4	34074.7
460 Laminacion Primaria de Hierro y	6379.9	6331.5	6186.9	6552.7	7268.2	7273.6	7591.0	8597.1	10562.3	10937.3	10975.0	11534.7	10733.6	10448.2	11328.2	10988.0	10854.3	11537.2	11426.0	11743.2
461 Lamina. Secundaria de Hierro y A	8372.6	8322.3	9393.9	10591.2	11713.1	11905.7	11721.5	12324.3	14844.4	16142.2	16652.9	16968.0	15270.7	15154.1	16836.2	16902.7	16188.6	17089.2	17368.7	18251.8
462 Tubos y Postes de Hierro y Acero	1713.8	1797.8	2056.3	2056.3	2373.3	2409.3	2625.2	2832.6	3567.7	3651.7	3917.3	4312.9	4164.1	3274.9	4085.7	4003.5	3018.3	3398.3	4132.7	4077.9
47 Industrias Basicas de Metales No	3229.5	3232.7	3639.6	4146.7	4585.9	4359.6	4766.7	4579.4	4957.3	5777.8	6026.2	6448.1	5536.1	5140.4	5628.5	5986.0	5737.0	7309.8	7528.6	7731.7
470 Metalurgia del Cobre y sus Aleac	2037.0	1859.8	2167.4	2416.9	2752.0	2682.7	2937.4	2802.9	2974.0	3462.9	3530.1	4155.0	3378.3	3163.0	3650.1	3679.4	3537.2	4772.7	5016.3	5168.1
471 Otros Me no Ferrosos, Incluso So	1192.5	1372.6	1471.5	1731.6	1834.1	1675.5	1826.1	1776.6	1983.1	2314.6	2494.7	2315.1	2165.4	1965.8	2003.3	2297.8	2210.3	2567.1	2549.6	2607.0
48 Muebles Metalicos	2520.2	2169.9	2333.7	2721.8	2532.6	2782.3	2946.1	2991.5	3203.2	3477.9	3485.4	3715.5	3203.1	2230.7	2317.8	2667.3	2360.6	2495.6	2303.9	2609.3
480 Muebles Metalicos y sus Accesori	2520.2	2169.9	2333.7	2721.8	2532.6	2782.3	2946.1	2991.5	3203.2	3477.9	3485.4	3715.5	3203.1	2230.7	2317.8	2667.3	2360.6	2495.6	2303.9	2609.3
49 Productos Metalicos Estructurale	2029.5	1984.6	2106.6	2264.9	2559.2	2557.2	2778.4	2543.0	2459.8	2758.1	3060.5	3329.8	3360.4	2693.2	2702.4	2946.3	2592.2	2365.8	2301.5	2491.2
490 Cortinas, Puertas y Trabajos de	634.3	706.5	732.0	783.1	934.3	972.6	958.0	877.9	820.8	934.7	1016.8	1064.9	1091.0	972.0	1020.9	1113.4	1062.5	1133.7	1099.1	1134.7
491 Estruc para la Const y Tanque M	1396.2	1255.7	1374.3	1501.2	1625.4	1685.4	1690.5	1665.9	1639.4	1623.5	2044.0	2244.3	2268.8	1725.1	1690.4	1743.5	1543.2	1253.0	1222.3	1375.8
50 Otros Productos Meta, Excepto Me	6939.0	6439.4	7286.0	7910.5	8514.2	8639.1	8640.3	8701.5	10110.1	11733.8	12289.0	12461.0	12289.0	10364.2	10560.8	11035.5	10396.5	10851.2	10769.7	11634.3
500 Cuchilleria y Similares	228.0	254.0	282.9	316.3	361.3	391.5	327.0	359.8	330.4	356.2	370.0	325.6	377.8	374.9	400.8	427.4	430.9	418.1	385.6	436.1
501 Utensilios Agricolas y Herramien	540.2	496.4	491.0	552.6	529.4	627.8	642.4	532.6	629.3	706.8	749.8	857.0	783.5	719.8	774.5	834.5	793.3	840.5	830.8	930.5
502 Clavos Tornillos y Similares	446.7	441.8	493.2	562.4	624.9	654.4	662.9	610.6	731.7	873.3	933.6	884.1	899.1	778.6	768.4	861.7	772.1	774.9	900.9	891.6
503 Galvanizado, Cromado, Niquelado,	566.3	426.4	650.1	564.0	666.5	722.0	725.4	690.3	714.7	915.7	772.4	869.1	1062.1	1249.8	1431.3	1215.8	1287.3	1619.8	1694.7	1755.7
504 Fundicion y Moldeo de Pieza Meta	766.0	756.0	853.3	939.1	1013.4	1036.4	1159.7	961.2	1296.8	1474.8	1550.4	1609.3	1452.7	1266.8	1369.1	1452.7	1210.8	1120.8	1178.3	1074.4
505 Envases y Productos de Hojalata	1232.1	1096.6	1201.3	1276.2	1552.4	1381.2	1604.4	1604.4	1887.6	2225.2	2360.3	2258.6	2203.8	1266.8	1300.3	1372.0	1427.9	1575.2	1264.9	1536.9
506 Corcholatas, Esmaltados y Troque	906.8	951.7	1076.6	1166.3	1066.5	1161.4	1182.3	1256.2	1368.1	1659.7	1736.8	1755.7	1766.1	1465.7	1319.6	1462.2	1427.5	1344.1	1375.4	1752.2
507 Alambre y Articulos de Alambre	1114.9	1068.1	1192.9	1368.0	1512.9	1655.3	1485.0	1504.9	1747.0	1926.5	2111.6	2196.2	2160.2	2033.5	2039.8	2141.2	1822.3	2183.4	2075.7	2181.3
508 Otros Productos Metalicos	1046.2	949.9	1044.1	1147.7	1175.9	1207.3	1253.3	1264.9	1366.2	1591.3	1671.8	1706.9	1641.7	1421.1	1392.6	1474.8	1397.8	1419.4	1345.8	1472.8
51 Maquinaria y Equipo No Electrico	5460.1	5796.8	6442.9	7696.7	8354.0	9500.6	9795.4	9682.8	11258.7	13420.9	14616.7	15869.1	13038.1	9924.7	10085.5	11367.2	9559.3	9413.1	11678.7	12161.1
510 Maquinaria e Implementos Agricol	585.1	658.3	735.8	826.2	1023.4	1420.7	1485.8	1663.7	2014.8	2243.4	2494.4	2599.1	1983.0	1369.4	1439.2	1751.0	1202.3	947.9	1371.9	1384.4
511 Maquinaria y Equipo para la Indu	601.3	660.0	700.3	843.2	961.0	955.5	1130.4	1116.4	1045.2	1530.0	1652.8	1861.0	1804.9	1188.4	1074.3	1140.4	1024.7	915.8	1044.6	998.6
512 Maquinas de Oficina, Calculo y C	575.4	641.6	716.2	796.9	969.7	1309.0	1355.6	1579.5	1549.6	1906.5	2223.9	2441.9	1854.8	1334.4	1992.2	2617.9	2370.7	3022.3	5006.0	5915.6
513 Calderas, Quemadores y Calentado	381.3	343.2	515.9	584.2	568.0	574.6	585.7	544.1	776.3	966.8	1008.2	1186.6	1031.3	786.4	574.6	566.6	567.6	676.5	604.9	715.8
514 Remolques, Gruas y Similares	420.3	460.2	439.2	572.0	657.8	729.6	866.2	487.5	646.1	766.7	873.4	908.3	744.1	610.5	696.7	695.2	644.1	444.6	562.5	447.2
515 Bombas Rociadores y Extinguidore	471.2	479.2	499.9	620.1	677.1	691.7	620.6	602.7	743.6	781.0	756.0	713.7	632.7	563.5	541.5	594.2	539.2	525.8	513.2	537.6
516 Valvulas	595.4	630.5	611.5	631.1	672.6	711.5	707.3	752.6	836.3	894.9	940.7	994.4	900.3	786.9	781.7	823.1	848.2	569.1	606.8	556.6
517 Maquinas de Coser	228.4	269.2	335.7	415.0	477.6	579.0	606.7	616.6	953.3	1067.2	1103.4	1218.2	1123.3	906.9	922.4	961.1	867.1	902.6	705.1	632.2
518 Otra Maquinaria y Equipo, su Rep	1721.7	1737.2	1892.1	2410.4	2307.1	2427.6	2437.9	2320.9	2796.0	3271.2	3632.9	3815.6	3133.7	2268.1	2204.5	2455.4	2128.8	2105.6	2487.2	2564.9
52 Maquinaria y Aparatos Electricos	2490.2	2512.6	3122.7	3299.5	3396.6	3414.1	3620.8	3585.5	4572.0	5224.4	5639.1	6432.1	5654.0	4329.6	4660.0	5360.5	5048.3	5184.9	5428.4	5933.2
520 Motores, Generadores y Similares	1655.1	1727.9	2226.1	2275.6	2259.2	2292.3	2308.9	2355.2	3071.9	3452.5	3904.4	4406.0	3830.2	3150.8	3443.7	3822.4	3858.4	3889.6	3806.8	4126.9
521 Maquinaria y Equipo Industrial E	835.1	785.0	896.9	1024.7	1136.6	1121.5	1311.1	1330.3	1499.8	1772.9	2035.1	2073.6	1856.0	1257.7	1333.0	1632.2	1479.5	1569.1	1686.1	1864.2
53 Aparatos Electro-Domesticos	1693.0	2166.4	2394.6	2962.5	3452.8	3680.7	4176.0	4700.3	5268.2	6069.0	6881.1	7410.9	7046.2	5236.5	4039.2	4514.0	4231.8	4011.7	4149.3	4245.6
530 Aparatos Electricos y Accesorios	1693.0	2166.4	2394.6	2962.5	3452.8	3680.7	4176.0	4700.3	5268.2	6069.0	6881.1	7410.9	7046.2	5236.5	4039.2	4514.0	4231.8	4011.7	4149.3	4245.6
54 Equipos y Aparatos Electronicos	4921.3	4603.2	5334.7	6653.4	7308.1	7470.5	9360.3	9360.3	10462.7	12022.7	12559.2	12735.0	10750.6	8092.8	8921.7	10448.2	10047.3	10972.4	10625.0	11567.0
540 Radios, Televisores, Tocadiscos	2609.5	2362.5	2656.5	3285.4	3696.9	3541.1	4412.7	4042.1	4457.0	5132.9	5566.7	5306.9	3909.2	2901.3	2961.4	4020.6	3558.4	3241.0	3190.8	2984.8
541 Discos y Cintas Magnetofonicas	396.2	435.4	448.1	668.4	770.2	886.7	1103.6	1327.3	1759.9	2033.3	2103.4	2246.5	2273.8	1537.6	1569.2	1752.2	1690.6	1543.9	1602.8	2256.4
542 Otros Equipos y Refacciones	1915.6	1982.6	2229.8	2710.6	2942.4	3042.0	3646.5	3990.2	4243.1	4856.0	4866.7	5136.9	4476.2	4442.0	5106.6	4584.2	4637.5	5033.3	5512.2	5937.3
55 Equipos y Aparatos Electricos	2334.7	2182.9	2554.2	2997.6	3164.5	3147.2	3147.2	3434.3	3733.2	4370.6	5024.3	5536.6	5275.5	4315.9	4953.9	5488.5	5049.4	5431.2	5280.4	5938.7
550 Acumuladores, Baterias y Pilas	709.7	720.3	743.8	934.9	1016.3	1024.6	1001.4	1230.6	1339.9	1567.0	1800.5	2074.2	2196.6	1719.5	1829.3	1982.6	1683.3	1984.2	2005.8	2477.5
551 Focos y Tubos Electricos	298.7	339.3	378.2	446.0	446.6	409.2	413.4	540.9	568.9	640.7	658.0	725.2	623.8	537.9	662.4	739.6	699.5	741.8	704.8	782.7
552 Otros Materiales, Aparatos y Acc	1326.5	1124.7	1432.4	1618.1	1721.5	1712.3	1730.8	1663.2	1835.6	2163.2	2565.1	2764.9	2488.1	2060.3	2462.5	2780.8	2660.7	2721.5	2575.3	2754.9
56 Automoviles	8965.5	10279.4	11672.2	14727.2	17998.0	16698.8	16713.0	15066.7	20180.4	23631.9	26963.6	32677.0	25040.6	14975.8	19617.8	25580.3	19618.6	23206.8	30615.1	37857.8
560 Vehiculos Automoviles, Incluso T	8965.5	10279.4	11672.2	14727.2	17998.0	16698.8	16713.0	15066.7	20180.4	23631.9	26963.6	32677.0	25040.6	14975.8	19617.8	25580.3	19618.6	23206.8	30615.1	37857.8

ANNEX 2. VALUE OF PRODUCTION (MILLIONS OF 1970 PESOS)

GRUPO	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
700 Sector Privado	4875.2	5401.7	5840.5	6323.1	7307.9	8302.5	9199.5	10360.0	11910.1	13553.1	15176.5	16512.0	17226.3	17528.9	16318.0	16697.4	16785.2	16058.7	15404.1	15[illegible].8
701 Sector Publico	7442.2	8619.0	9601.4	10471.2	11416.3	12413.6	14303.9	14400.7	16397.9	18402.6	17652.9	18923.9	20000.7	20459.7	21024.6	21589.5	22401.5	22807.5	23707.8	24767.0
71 Servicios de Esparcimiento	7367.2	7364.6	7835.4	8291.6	8196.9	8482.9	8975.8	9130.3	9571.7	10292.7	10587.0	11423.4	11031.7	10566.2	10788.2	10174.1	9634.2	9157.8	9517.7	9708.3
710 Espectaculos Publicos	1966.3	2044.9	2046.8	2247.4	2271.2	2416.1	2674.9	2785.5	2779.4	2656.6	3005.7	2951.6	2834.4	3006.7	3095.9	2825.4	2760.3	2657.1	2639.0	2569.9
711 Estaciones de Radio y Television	1652.8	1593.3	1763.5	1877.6	1730.5	1813.1	1818.1	1833.0	1958.6	2170.1	2419.7	2956.9	2869.6	2913.3	3005.3	3106.9	3109.3	3119.0	3620.7	3682.8
712 Produccion y Distribuccion de Pe	699.6	623.3	605.9	693.6	687.6	589.2	735.8	591.8	696.3	837.5	668.8	714.3	650.1	602.6	704.9	594.6	515.7	350.5	334.4	290.9
713 Otros Servicios de Esparcimiento	3049.6	3098.4	3375.9	3470.4	3507.0	3682.6	3848.6	3962.3	4136.3	4426.0	4469.0	4704.6	4582.3	4008.7	3927.9	3577.7	3209.6	3021.1	2957.2	3068.4
72 Otros Servicios	30600.0	31600.8	32494.0	33479.6	34403.6	35389.2	36405.6	37391.2	38530.6	39656.2	40902.4	43397.4	44460.9	44829.0	42374.9	43192.9	40984.2	41925.0	41925.0	43356.6
720 Servicios de Alquiler	1237.8	1291.0	1422.2	1567.1	1659.9	1756.9	1844.3	1896.3	2072.1	2273.8	2437.2	2615.1	2529.8	2364.4	2478.7	2607.8	2473.8	2520.1	2690.8	2724.8
721 Servicios de Reparacion	12400.9	12574.5	12748.1	12921.7	13107.6	13306.2	13492.2	13678.2	13864.2	14062.8	14261.0	16086.4	16063.0	20849.6	17284.4	17598.1	16516.0	16257.6	16672.5	17058.2
723 Servicios de Aseo y Limpieza	5624.5	5821.4	6023.6	6237.6	6456.9	6687.5	6912.5	7164.4	7407.5	7666.2	7936.2	8196.1	8368.5	8056.2	8190.1	8380.8	8317.1	8602.8	8721.9	8898.4
726 Otros Servicios	3585.7	3963.4	4041.1	4122.7	4204.3	4278.2	4375.3	4484.7	4654.0	4843.4	4736.7	4997.2	4936.6	4706.2	4858.8	4946.1	4883.5	4983.0	5238.8	5469.8
726 Servicios Domesticos	7651.1	7941.8	8270.8	8622.8	8990.0	9372.6	9785.8	10198.9	10627.4	11201.2	11537.9	11937.0	11284.0	10441.8	10189.5	10303.3	9822.8	9749.5	9616.7	9391.9
73 Administracion Publica y Defensa	16695.2	16047.5	21303.1	24074.5	25078.2	26901.1	30669.1	29083.0	32705.9	36146.1	39618.1	43401.7	42923.9	42983.7	46706.6	46706.6	45551.9	44598.2	43043.3	40534.8
730 Gobierno Central	12059.6	12976.1	15991.0	18559.7	19054.2	23238.5	23673.0	21839.9	25098.0	27520.0	29634.0	31926.2	30587.6	30360.9	33107.6	31955.7	30587.6	29947.4	29445.4	26848.4
731 Gobierno Local	3119.2	3378.1	3577.7	3743.0	4051.6	4404.3	4580.3	4741.2	4980.7	5701.9	7121.1	7890.2	8281.9	8417.2	8236.1	10240.2	10297.2	9891.3	8901.4	8823.1
732 Seguridad Social	1516.4	1699.9	1737.8	1772.7	1956.2	2251.9	2448.0	2502.1	2817.3	2926.2	3162.8	3571.9	3959.7	4068.9	4221.3	4252.9	4401.9	4470.4	4489.3	4840.8
AGRICULTURA	149174.9	157473.4	160557.1	169094.4	172043.0	177163.4	178914.3	182431.4	201778.9	200267.4	213342.1	226353.9	224282.1	226289.7	234888.9	243232.5	238408.1	239847.4	231778.6	222277.7
MINERIA	34787.3	34448.7	36316.6	38111.1	43054.9	45573.9	48895.9	53298.7	60728.9	69882.9	84367.7	89579.8	109409.3	108788.3	110612.5	110128.9	105324.9	110770.7	111637.1	110492.9
MANUFACTURAS	274141.4	285168.3	311978.3	336509.7	365412.7	381405.4	398295.9	412508.3	451239.6	499707.2	531647.6	569910.8	552439.3	514784.7	543569.9	573931.7	544253.7	562980.9	561505.2	523783.9
INTERMEDIOS	112873.2	118179.4	131291.9	144012.4	155892.5	159804.0	168462.3	176828.4	195213.6	218346.6	232368.1	249158.8	240534.6	231461.6	247714.3	258162.6	246380.1	260580.2	259462.3	252203.4
CONSUMO FINAL	146895.9	152606.4	164514.9	175864.9	189712.8	200333.6	207127.4	213230.5	230854.7	251623.1	267901.3	285754.2	282168.9	262933.3	271777.3	288087.9	274008.8	277803.1	287511.3	311931.4
BIENES DE CAPITAL	14373.2	14382.5	16171.6	16832.4	19707.4	21467.8	22986.2	22449.4	25171.3	29738.5	31347.2	33800.8	29727.4	23289.8	24167.2	26681.0	23854.9	24297.6	27531.6	29648.2
SERVICIOS	596037.9	624880.5	667788.6	745284.4	788967.5	847235.0	880738.5	904158.1	982007.9	1061883.0	1161619.0	1256025.0	1288529.0	1226388.0	1288859.0	1281623.0	1251882.0	1276328.0	1292558.0	1338088.9
TOTAL	1054141	1101979	1196621	1286990	1370478	1451286	1517915	1562386	1695754	1846720	2012978	2190789	2175681	2080206	2157859	2208312	2138886	2189707	2216978	2294639

Figures for 1970–1980 obtained from INEGI national accounts series 1970–1984. Figures for 1981–1989 were calculated by applying volume indexes of the 1980–1989 series to values of production at 1970 prices from the 1970–1984 series. For that reason, sectoral subtotals do not always check.

ANNEX 3. POLLUTION INTENSITY BY ISIC CLASS (KGS. OF POLLUTANTS PER MILLION DOLLARS OF 1987)

ISIC	AVTRIT	AVHUML	AVHUMX	AVQAC	AVQAX	AVCANC	AVMETAL
3111	0.21744	0.43198	5.03885	0.75745	165.34600	0.00000	0.00108
3112	0.94444	2.25162	42.73592	2.47842	160.85230	0.00000	0.00775
3113	1.17840	2.14441	28.32050	2.94753	445.68670	0.00000	0.00133
3115	2.85564	3.71577	72.27661	4.03229	105.12370	0.00004	0.07769
3116	0.11192	0.28092	8.14220	0.22263	8.31998	0.00000	0.02216
3117	0.35885	0.72743	15.95860	0.76381	54.14074	0.00000	0.00000
3118	0.54608	1.12369	14.62606	1.41451	185.53510	0.00000	0.00216
3119	0.21936	0.47574	5.52554	0.69102	117.70720	0.00000	0.00000
3121	1.24691	2.02479	17.06541	2.68872	323.85680	0.00000	0.00481
3122	0.31834	0.69610	9.35497	1.03086	170.76040	0.00000	0.00558
3131	0.20321	0.57048	16.79732	0.57085	17.12605	0.00000	0.00000
3132	0.39857	0.76910	15.87605	1.03252	85.55396	0.00000	0.00190
3133	0.21893	0.37488	1.98519	0.51810	77.09055	0.00000	0.04094
3134	0.08437	0.21728	5.26276	0.25759	28.84242	0.00000	0.00053
3140	0.48895	0.97789	5.30894	1.50272	118.24180	0.00000	0.00000
3211	3.10667	7.39996	154.38130	8.76061	492.97520	0.00001	0.00777
3212	2.60915	4.30709	46.87730	5.90487	286.04990	0.00000	0.08850
3213	2.11929	4.73833	102.27780	5.50769	370.44920	0.00002	0.00700
3214	1.05331	1.30690	7.17767	1.54061	89.63239	0.00000	0.00000
3219	8.64464	15.49652	75.20777	20.01203	565.33610	0.00000	0.66672
3220	1.74478	3.34175	17.51573	4.45788	136.61920	0.00000	0.00000
3231	18.15349	30.39884	318.92700	33.91101	1009.82000	0.00002	1.25294
3240	2.27767	3.32404	11.69500	5.17968	80.67771	0.00000	0.00000
3311	4.22548	9.09065	144.68670	10.48031	589.19190	0.00002	0.02442
3319	5.96399	10.64782	67.90981	13.21991	638.25080	0.00408	0.00496
3320	5.38685	10.05677	61.29095	12.11476	255.29660	0.00000	0.01129
3411	6.22594	11.72056	116.89980	13.50168	843.98030	0.00360	0.03309
3412	11.37467	21.83208	122.87020	26.45932	676.65390	0.00001	0.00564
3419	7.60737	14.77165	87.44201	18.85593	565.53380	0.02936	0.08160
3420	7.51391	14.93156	109.25190	20.10880	644.29370	0.00001	0.03319
3511	32.25463	54.92286	609.77090	60.86704	3015.21000	0.00549	1.52432
3512	52.26028	105.30260	966.59990	143.66930	19891.18000	0.00006	0.03076
3513	14.00292	26.43672	544.60270	24.39053	769.96500	0.00046	0.30476
3521	5.52839	9.81975	46.28634	11.39710	235.66520	0.00000	0.14175
3522	3.96572	7.41645	42.81971	8.41359	233.30940	0.00001	0.03354
3523	1.87933	3.51560	39.95791	4.72661	624.57080	0.00003	0.04356
3529	3.83323	7.22862	75.91536	8.43282	205.24380	0.00019	0.03013
3530	3.75794	7.66950	78.63459	8.92270	630.10600	0.00807	0.03334
3540	2.54409	4.77774	29.44427	6.55634	224.70560	0.00038	0.13001
3551	0.49313	0.74490	2.89413	0.91548	19.84593	0.00000	0.24170
3559	6.52667	12.21466	60.75779	16.23729	521.71240	0.00003	0.81340
3560	9.33503	17.31052	175.55990	19.76543	326.06330	0.00234	0.08407
3610	3.61449	5.47942	29.16466	6.55515	94.77779	0.00000	1.35241
3620	1.48119	2.89316	43.58379	2.94786	145.59430	0.00000	0.42570
3691	1.20975	1.40437	7.89666	1.38660	10.21303	0.00000	1.02907
3692	0.51694	0.98015	18.47423	1.16257	64.18251	0.00267	0.14093
3699	5.10609	7.87822	56.60011	9.68742	561.96850	0.48016	0.32127
3710	7.64278	12.93193	349.89760	13.79194	807.12070	0.00261	4.09952
3720	9.33428	13.23468	151.21910	13.00857	429.66950	0.00328	6.53976
3811	2.42554	4.75292	75.44722	6.29673	347.40300	0.00003	0.23664
3812	1.95901	3.70066	30.09547	4.83466	126.86080	0.00000	0.04191
3813	4.01728	8.61765	201.71070	9.32530	219.38040	0.00049	0.33732
3819	5.84384	11.50349	212.82490	12.07985	355.59770	0.00012	0.56523
3822	0.69518	1.32017	9.24275	1.58482	39.02625	0.00000	0.03006
3823	3.16181	5.30773	30.30179	6.53467	111.81530	0.00001	0.45739
3824	0.74531	1.46814	25.09634	1.72132	44.72525	0.00001	0.07271
3825	0.30327	0.45240	3.16344	0.50858	7.99350	0.00000	0.01055
3829	1.75055	3.16368	51.89930	4.06893	114.57180	0.00000	0.26745
3831	1.03023	1.73863	18.70902	2.18580	66.83495	0.00058	0.12191
3832	1.80831	3.13739	29.20739	3.81263	125.49130	0.00001	0.13155
3833	1.18943	2.32056	23.41520	3.07609	109.11160	0.00000	0.03288
3839	2.50614	4.50333	57.62120	4.65703	152.62250	0.00000	1.17809
3842	0.87470	1.67489	8.46001	2.18881	65.60342	0.00000	0.03408
3843	0.66695	1.18835	15.73307	1.39113	34.17420	0.00301	0.05082
3845	1.01162	2.09932	28.71172	2.60972	91.67528	0.00010	0.03961
3851	0.86100	1.54587	16.20965	1.92670	60.94786	0.00001	0.02958
3852	0.93672	1.58527	15.37270	1.87083	32.56198	0.00000	0.01647
3853	2.95224	4.73261	19.47691	6.09166	145.30250	0.00000	0.00541
3901	2.02610	4.20011	59.12272	5.80054	194.38500	0.00008	0.08396
3902	5.70437	10.85665	52.07490	13.07291	260.20870	0.00000	0.28432
3909	3.06719	5.05154	38.02849	5.93036	119.63870	0.00001	0.91876

Source: Wheeler (1991b)

ANNEX 4. CORRESPONDENCE NATIONAL ACCOUNTS ACTIVITIES ISIC CLASSES 1950-1971

NATIONAL ACCOUNTS ACTIVITY		ISIC GROUP	PARTICIPATION
7a	Petroleo	3530	0.633
7b	Produccion Petroquimica Basica	3511	1.000
8	Carne Leche y Productos Lacteos	3111	0.752
8	Carne Leche y Productos Lacteos	3112	0.248
9	Molienda de Trigo Nixtamal , Pan	3116	0.146
9	Molienda de Trigo Nixtamal , Pan	3117	0.854
10	Otros Productos Alimenticios	3113	0.064
10	Otros Productos Alimenticios	3114	0.062
10	Otros Productos Alimenticios	3115	0.216
10	Otros Productos Alimenticios	3116	0.146
10	Otros Productos Alimenticios	3118	0.149
10	Otros Productos Alimenticios	3119	0.073
10	Otros Productos Alimenticios	3121	0.142
10	Otros Productos Alimenticios	3122	0.144
10	Otros Productos Alimenticios	3131	0.004
11	Elaboracion de Bebidas	3131	0.047
11	Elaboracion de Bebidas	3132	0.200
11	Elaboracion de Bebidas	3133	0.382
11	Elaboracion de Bebidas	3134	0.371
12	Manufactura de Productos de Tabaco	3140	1.000
13	Textiles de Fibras Blandas	3211	1.000
14	Otras Industrias Textiles	3211	0.413
14	Otras Industrias Textiles	3212	0.132
14	Otras Industrias Textiles	3213	0.158
14	Otras Industrias Textiles	3214	0.140
14	Otras Industrias Textiles	3219	0.157
15	Calzado, Prendas de Vestir etc.	3213	0.222
15	Calzado, Prendas de Vestir etc.	3220	0.476
15	Calzado, Prendas de Vestir etc.	3240	0.302
16	Industria Maderera	3311	0.473
16	Industria Maderera	3319	0.100
16	Industria Maderera	3320	0.427
17	Papel y productos de Papel	3411	0.645
17	Papel y productos de Papel	3412	0.355
18	Imprenta y Editorial	3420	1.000
19	Cuero y Productos de Cuero	3231	1.000
20	Productos de Hule	3551	0.762
20	Productos de Hule	3559	0.238
21	Quimicos Basicos	3511	1.000
22	Fibras Sinteticas, Resinas, Plastic	3513	1.000
23	Abonos, Fertilizantes, Insecticidas	3512	1.000
24	Jabones y Detergentes	3523	1.000
25	Farmaceuticos y Medicinas	3522	1.000
26	Cosmeticos	3523	1.000
27	Otras Industrias Quimicas	3521	0.315
27	Otras Industrias Quimicas	3529	0.685
28	Productos Minerales No Metalicos	3610	0.305
28	Productos Minerales No Metalicos	3620	0.201
28	Productos Minerales No Metalicos	3691	0.077
28	Productos Minerales No Metalicos	3692	0.178
28	Productos Minerales No Metalicos	3699	0.239
29	Industrias Metalicas Basicas	3710	0.827
29	Industrias Metalicas Basicas	3720	0.173
30	Productos Metalicos	3811	0.122
30	Productos Metalicos	3812	0.219
30	Productos Metalicos	3813	0.121
30	Productos Metalicos	3819	0.538
31	Maquinaria	3822	0.103
31	Maquinaria	3824	0.092
31	Maquinaria	3825	0.105
31	Maquinaria	3829	0.700
32	Maquinaria y Aparatos Electricos	3831	0.214
32	Maquinaria y Aparatos Electricos	3832	0.423
32	Maquinaria y Aparatos Electricos	3833	0.163
32	Maquinaria y Aparatos Electricos	3839	0.200
33	Equipo y Material de Transporte	3841	0.165
33	Equipo y Material de Transporte	3842	0.420
33	Equipo y Material de Transporte	3844	0.415
34	Vehiculos, Automoviles y Partes	3843	1.000
35	Industrias Manufactureras Diversas	3529	0.100
35	Industrias Manufactureras Diversas	3560	0.454
35	Industrias Manufactureras Diversas	3851	0.098
35	Industrias Manufactureras Diversas	3901	0.189
35	Industrias Manufactureras Diversas	3909	0.159

ANNEX 6. CORRESPONDENCE NATIONAL ACCOUNTS ACTIVITIES ISIC CLASSES 1970–1989

NATIONAL ACCOUNTS ACTIVITY			ISIC GROUP
11	0	Carnes	3111
11	1	Leche, Crema, Mantequilla y Queso	3112
11	2	Otros Productos Lacteos	3112
12	0	Frutas y Legumbres Envasadas y Seca	3113
12	1	Salsas y Condimentos	3121
13	0	Harina de Trigo	3116
13	1	Pan y Otros Productos de Harina	3117
14	0	Harina de Maiz	3116
14	1	Nixtamal y Tortillas de Maiz	3117
15	0	Beneficio de Cafe	3116
15	1	Cafe; Cafe Soluble y Te	3121
16	0	Azucar y Subproductos	3118
16	1	Alcohol Etilico	3131
17	0	Aceites y Grasas Vegetales Comesti	3115
18	0	Alimentos Para Animales	3122
19	0	Dulces, Bombones y Confituras	3119
19	1	Prepa. y Envase de Pescado y Marisc	3114
19	2	Arroz y Otros Produc Agrico de Moli	3116
19	3	Concentrados y Jarabes	3121
19	4	Otros Productos Alimenticios	3121
20	0	Aguardientes a Base de Agaves,	3131
20	1	Vinos y Licores	3132
20	2	Pulque y Otras Bebidas Fermentadas	3132
21	0	Fabricacion de Malta	3133
21	1	Cerveza	3133
22	0	Refrescos y Aguas Gaseosas	3134
23	0	Beneficio de Tabaco	3140
23	1	Cigarros y Puros	3140
24	0	Despepite y Empaque de Algodon	3211
24	1	Prepara de Fibras Blandas Para hil	3211
24	2	Hilos e Hilados Para Coser y Tejer	3211
24	3	Hilados y Tejidos de Fibras Blandas	3211
25	0	Henequen	3211
25	1	Otras Fibras Duras	3211
26	0	Telas Impermeabilizadas e Impregna	3219
26	1	Alfombras telas afelpadas y fieltro	3214
26	2	Encajes, Cintas y Tejidos Angostos	3213
26	3	Algodon Absorbente, Vendas y Simila	3219
26	4	Otros Textiles	3212
27	0	Articulos de Punto	3213
27	1	Ropa Interior y Exterior	3220
27	2	Otras Prendas de Vestir	3220
28	0	Curtido y Acabado de Cuero y Piel	3231
28	1	Calzado y Otros Articulos de Cuero	3240

ANNEX 5. CORRESPONDENCE NATIONAL ACCOUNTS ACTIVITIES ISIC CLASSES 1970–1989

NATIONAL ACCOUNTS ACTIVITY			ISIC GROUP
28	2	Otros Calzados de Cuero o Tela	3240
29	0	Aserraderos	3311
29	1	Triplay, Tableros Aglutina y Fibrac	3311
30	0	Muebles, Incluso Colchones	3320
30	1	Puertas, Ventanas y Similares	3311
30	2	Otros Produc de Madera, Palma y Cor	3319
31	0	Pastas de Celulosa y Papel	3411
31	1	Carton, Cartoncillo y Carton Impreg	3411
31	2	Envases y Otros Productos	3412
32	0	Libros, Periodicos y Revistas	3420
32	1	Imprenta y Encuadernacion	3420
33	0	Refinacion de Petroleo Crudo y Deri	3530
33	1	Regeneracion de Aceites y Asfaltos	3540
34	0	Productos Petroquimicos Basicos	3511
35	0	Colorantes y Pigmentos	3511
35	1	Gases Industriales	3511
35	2	Productos Quimicos Basicos	3511
36	0	Abonos y Fertilizantes	3512
37	0	Resinas Sinteticas	3513
37	1	Fibras Celulosicas y Sinteticas	3513
38	0	Productos Medicinales	3522
39	0	Jabones, Detergentes y Similares	3523
39	1	Perfumes Cosmeticos y Similares	3523
40	0	Insecticidas y Plaguicidas	3512
40	1	Pinturas, Barnices y Lacas	3521
40	2	Impermeabilizantes Adhesivos y Simi	3529
40	3	Tintas y Pulimentos	3529
40	4	Otros Productos Quimicos	3529
41	0	Llantas y Camaras	3551
41	1	Vulcanizacion de Llantas y Camaras	3551
41	2	Otros Produc de Hule, Incluso Calza	3559
42	0	Materiales y Articulos de Plastico	3560
43	0	Vidrio Plano, liso y labrado	3620
43	1	Envases y Ampolletas de Vidrio	3620
43	2	Fibras de Vidrio y Similares	3620
43	3	Otros Articulos de Vidrio y Cristal	3620
44	0	Cemento Hidraulico	3692
45	0	Alfareria, loza y Porcelana	3610
45	1	Ladrillos y Tabiques	3610
45	2	Cal y Yeso	3691
45	3	Productos de Asbesto	3699
45	4	Mosaicos y Marmoles	3699
46	0	Laminacion Primaria de Hierro y Ace	3710
46	1	Lamina. Secundaria de Hierro y Acer	3710

ANNEX 5. CORRESPONDENCE NATIONAL ACCOUNTS ACTIVITIES ISIC CLASSES 1970-1989

NATIONAL ACCOUNTS ACTIVITY			ISIC GROUP
46	2	Tubos y Postes de Hierro y Acero	3710
47	0	Metalurgia del Cobre y sus Aleacion	3720
47	1	Otros Me no Ferrosos, incluso Solda	3720
48	0	Muebles Metalicos y sus Accesorios	3812
49	0	Cortinas, Puertas y Trabajos de Her	3811
49	1	Estruc para la Constr y Tanque Meta	3813
50	0	Cuchilleria y Similares	3811
50	1	Utensilios Agricolas y Herramientas	3811
50	2	Clavos Tornillos y Similares	3819
50	3	Galvanizado, Cromado, Niquelado,etc	3819
50	4	Fundicion y Moldeo de Pieza Metalic	3819
50	5	Envases y Productos de Hojalata	3819
50	6	Corcholatas, Esmaltados y Troquelad	3819
50	7	Alambre y Articulos de Alambre	3819
50	8	Otros Productos Metalicos	3819
51	0	Maquinaria e Implementos Agricolas	3822
51	1	Maquinaria y Equipo para la Industr	3824
51	2	Maquinas de Oficina, Calculo y Cont	3825
51	3	Calderas, Quemadores y Calentadores	3829
51	4	Remolques, Gruas y Similares	3829
51	5	Bombas Rociadores y Extinguidores	3829
51	6	Valvulas	3829
51	7	Maquinas de Coser	3829
52	0	Motores, Generadores y Similares	3831
52	1	Maquinaria y Equipo Industrial Elec	3831
53	0	Aparatos Electricos y Accesorios	3833
54	0	Radios, Televisores, Tocadiscos etc	3832
54	1	Discos y Cintas Magnetofonicas	3832
54	2	Otros Equipos y Refacciones	3832
55	0	Acumuladores, Baterias y Pilas	3839
55	1	Focos y Tubos Electricos	3839
55	2	Otros Materiales, Aparatos y Acceso	3839
56	0	Vehiculos Automoviles, incluso Trac	3843
57	0	Carroceria	3843
57	1	Motores, Refacciones y Accesorios	3843
58	0	Construccion y Reparacion de Embarc	3841
58	1	Constr y Reparacion de Equipo Ferro	3842
58	2	Otro Material de Transporte	3844
59	0	Articulos de Precision y Medicion	3851
59	1	Joyas, Orfebreria y Artic. de Fanta	3901
59	2	Articulos Paraquimicos	3529
59	3	Otras Industrias Manufactureras	3909

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